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PROCEEDINGS.

EVENING MEETING, 21st JULY, 1941.

The chair was occupied by the President, Mr. S. T. Blake, and thirty-seven members were present. Miss Twine and Mr. Irvine were elected members of the Club. Mr. E. O. Marks gave an account of the geology of the trip to Mt. Gravatt to visit the unique caves in the quartzite. The Honorary Secretary, Miss E. E. Baird, reported that few birds were noticed. Spinebills, Ibis, and Pardalotes were among those seen. The principal business of the meeting was a lecture by Professor H. C. Richards on "Brisbane's Building Stones." Buildings in Brisbane were made up of both local and imported stones. The lecturer remarked that Queensland was very rich in building stones and need not import any.

EVENING MEETING, 18th AUGUST, 1941.

The chair was occupied by the Vice-President (Dr. E. O. Marks), and about thirty-eight members were present. Messrs. J. Wyatt and J. L. Schofield were elected members. Reports of the trip to Sunnybank were given by Mr. N. Jack (birds), and by Mr. C. T. White (plants). The principal business of the meeting was a lecture by Mr. W. Murphy, L.Ph., on "Latvia and the Letts." Mr. Murphy was for several years lecturer in English and Psychology to the Latvian Ministry of Education. He described natural, social, and other conditions of the country. The language of the Letts was not in any way related to that of Russia, Scandinavia, or any adjacent country, with the solitary exception of Lithuania, but it had a distinct resemblance to Sanskrit.

A specimen of the Native Wistaria (*Milletia australis*) from the Lamington National Park was tabled by Mr. Gresty.

EVENING MEETING, 15th SEPTEMBER, 1941.

The chair was occupied by the President, Mr. S. T. Blake. Thirty-nine members were present. Reports on

the excursion to Point Lookout were given by Mr. S. T. Blake on Botany, Dr. E. O. Marks on Geology, and Mr. Robertson on Birds. The evening was devoted primarily to collections of wild flowers made in different parts of South-East Queensland.

EVENING MEETING, 20th OCTOBER, 1941.

The chair was occupied by the President, Mr. S. T. Blake, and thirty-eight members were present. Mr. T. Westbrook was elected a member.. Reports on the excursion to Sandgate were given by Mr. S. T. Blake (Botany), and Miss E. N. Baird (Birds). The principal business of the evening was an interesting lecture by Mr. D. S. A. Drain, Inspector in Schools, on some aspects of bird study. The lecturer, who had spent considerable time in encouraging nature study in schools, thought that pupils could assist in working out the life story of birds and insects, the boundaries of the territory in which the birds live, the migratory movement of birds, and the protection of birds.

EVENING MEETING, 17th NOVEMBER, 1941.

The chair was occupied by the President, Mr. S. T. Blake, and fifty-six members were present. The report of the excursion to the Sherwood Arboretum was given by Mr. C. T. White. It was noted that the naming of the trees in the Arboretum was unsatisfactory, and it was decided that the Club should write to the City Council regarding this and other matters affecting the Arboretum. Mr. G. H. Barker spoke on the birds seen at the Arboretum and listed eighteen species, including the Black-throated Butcher Bird and the Pale-headed Rosella. The principal business of the meeting was the screening of a number of slides of the Carnarvon Ranges taken by Miss Twine. The slides were commented on by Mr. C. T. White.

CAMP AT RUNNING CREEK, EASTER, 1941. GENERAL REPORT.

The Easter Camp for 1941 was pitched close to the south bank of Running Creek, near Richmond Gap, on land kindly made available to the Club by Messrs. Dryden and Burgess. Through the courtesy of the Railway Department an advance party of thirteen was enabled to proceed to the site of the camp early on Wednesday, April 9th, and to have the camp in readiness when the main

body of the party arrived in the early hours of Friday morning.

Previous to the arrival of the main party, the advance party had explored some of the country adjacent to the camp, while three members had ventured into the neighbouring valley of Chinghee Creek. Preferring to see new country on the return, these three began to take a direct route over the higher part of the divide, but were assured by a local resident that such was impossible, that not even a snake could penetrate the lantana, stinking roger and scrub, though a lizard or bandicoot might. However, the trio persevered, and at length reached camp long after dark, with the feeling that the local resident was not far wrong. They have been wondering ever since what they should call themselves.

On the Friday most members climbed or partly climbed Mt. Gipps, near the camp. It is an interesting mountain from which excellent views were obtained. On the following day a party of over thirty succeeded in reaching Running Creek Falls. The first part of this trip was easy enough through open forest, partly cleared at first. Then there was a patch of beautiful scrub, and finally the most strenuous part along the banks and sometimes over the boulders in the bed of the creek to the foot of the very beautiful 300ft. fall. It proved a long and very strenuous day, and it was well after dark before camp was reached, not without a few minor casualties. Next day was spent more leisurely in the neighbourhood of the camp. On Monday morning, the process of breaking camp began, and all was completed shortly after mid-day. Some sharp showers of rain dampened these proceedings a little, but at length everybody and everything except one tent were safely aboard the Sydney-Brisbane mail thoroughly agreed that a very enjoyable and interesting time had been spent in most delightful surroundings.

We cannot be too grateful to the officials of the Railway Department for the courteous way they arranged transport for the parties and camp gear, and in the way they prepared the place of disembarkation. The Club is greatly indebted to Messrs. Dryden and Burgess for the use of the land, and to Mr. Burgess for his assistance in transporting our gear between camp-site and railway, and for looking after a tent we were using as shelter until train-time. We are also very grateful to Mr. A. Groom and Mr. D. F. Robertson for selecting the camp-site so carefully.

THE VEGETATION OF RUNNING CREEK VALLEY, SOUTH-EAST QUEENSLAND, AND SOME NEIGHBOURING AREAS.

By S. T. Blake, M.Sc., Biology Department,
University of Queensland.

INTRODUCTION.

Running Creek is a tributary of the Logan River, rising in the McPherson Range near the western edge of the Lamington Plateau, running approximately westward almost to Glenapp, where it turns approximately north, and finally discharges into the Logan River near Rathdowney. On the plateau it is composed of two branches, the North Branch and the South Branch. The South Branch was not studied, but it is said to descend from the plateau in a series of cascades; it joins the North Branch at a point whose altitude is 1,100 feet. The North Branch spills over the edge of the plateau in a magnificent fall 300 feet high (Fig. 8), and shortly below the fall is joined by a small tributary, England Creek, which is also said to descend from the plateau in a series of cascades. From thence to Glenapp there are no tributaries other than small narrow shallow streams or gullies, which are often dry or only a string of waterholes.

In the lower part of its course Running Creek is flanked by a relatively broad alluvial plain largely given over to agriculture and dairying, but in the area studied, from about six miles upstream from Glenapp (altitude approximately 600 ft.) to the foot of the falls (altitude approximately 1,800 ft.), the valley is narrow, and in the upper part gorge-like (cf. Fig. 8) with steep or precipitous sides. On the south the watershed is formed by the steep-sided McPherson Range which, varying in height from about 1,100 ft. at Richmond Gap to 2,400 ft. at Mt. Gipps, and perhaps higher further east, is only $\frac{3}{4}$ –1 $\frac{1}{4}$ mile from the creek bed. The divide between the North and South Branches is apparently a tableland (an extension of the Lamington Plateau) of at least 2,000 ft. altitude, with very precipitous sides (this can be seen in the extreme background of Fig. 7). To the north, Running Creek is separated from Christmas Creek and its tributary, Chinghee Creek, by a steep divide varying in altitude from 1,100 to well above 2,000 ft., the crest of which varies from $\frac{1}{2}$ –1 mile from the creek bed.

The valley of Chinghee Creek is much more open than is that of Running Creek; Christmas Creek has, on the average, a wider valley than has Running Creek, but its watersheds are as steep.

Basalt is almost the only rock type to be seen except for a few deposits of river gravels. The soils also show little variation, all belonging to what are popularly called "black soils," varying from brown forest soils on the high ground to black earths in the valleys. The red loams so characteristic of basalt hills and plateaux in Eastern Queensland are conspicuous by their absence. In the valley of Chinghee Creek the soil is lighter in texture and colour, is frequently shallow, and isolated boulders, sometimes of large size, are scattered here and there. Along and in the creeks is an abundance of basalt boulders, but gravel is rare.

There are no meteorological data, but it seems fairly certain that the valley of Chinghee Creek is distinctly drier than that of Running Creek.

VEGETATION.

The vegetation may be considered under five heads :
Primary Vegetation.—

1. Closed Forest.
2. Open Forest.
3. Vegetation of stream banks and beds.
4. Swamps.

Secondary Vegetation.—

5. Artificial and Induced Vegetation.

1. Closed Forest (Figs. 5, 6 and 8) is widely spread, but the factors controlling its distribution are obscure and owing to circumstances it was not studied in detail. The communities occur chiefly on the ranges, coming down to the north bank of the creek near the junction of the North and South Branches, and on to both banks above the junction. But on the crests of the ranges and of some of their spurs it is frequently replaced by open forest, the closed forest communities being then confined to the gullies.

The Closed Forest is mostly well developed, and much of it could truly be called Rain Forest. The trees are tall and buttresses are well developed in a few species such as *Tarrietia actinophylla*, *Geissios lachnocarpa* and *Villaresia*

Moorei. *Araucaria Cunninghamii* (hoop pine) is conspicuous in some localities; in some others much of it has been removed for timber. Lianas are mostly fairly common, lawyer vine (*Calamus Muelleri*) being noticeable. Vascular epiphytes are relatively few in species and are confined to orchids and ferns, though some, particularly the bird's nest fern, *Asplenium nidus*, are rather numerous in individuals. The forest floor is covered with leaf-litter; herbaceous plants are not numerous and comprise chiefly a few ferns such as *Dryopteris tenera* and (on rocks) *Pellaea nana* and *Arthropteris tenella*, patches of the native ginger *Alpinia caerulea*, a small form of the grass *Oplismenus imbecillis*, *Polia crispata*, and particularly in damp gullies *Elatostemma reticulatum*. The *Oplismenus* is most characteristic of Mt. Gipps, where also *Danthonia longifolia* is abundant, chiefly on tracks. On this mountain, rain forest does not appear on the north-east and west slopes until within 160 ft. of the summit, though it was observed to descend considerably lower in the gullies on the south-west slopes. Another interesting member of the community on this mountain is the so-called Tasmanian Laurel, *Anopterus Macleayanus*, conspicuous by reason of its large glossy leaves with crimson petioles. On the New South Wales side of the border fence, white beech (*Gmelina Leichhartii*) was being cut for timber.

On and near the head-waters of Chinghee Creek, closed forest has been almost entirely replaced by artificial grassland, but a few forest remnants are to be found, chiefly in places with shallow or stony soil. These indicate a forest of a drier type than true rain-forest, but comparable with the so-called "dry scrubs" of the Brisbane Valley and South Burnett areas. Similar communities have also been observed on rocky places in the valley of Christmas Creek. In addition to these relict-communities, isolated trees and shrubs are scattered over the hill-sides, chiefly *Flindersia australis* (crow's ash), *Capparis nobilis* (native pomegranate), and a fig-tree or so (*Ficus* sp.)

The forest remnants are composed chiefly of small trees and shrubs about 20 ft. or so high. *Croton insularis* (cascarilla bark) is especially characteristic of these communities, and in one such community which was especially examined there also occurred the following species:—

(Small trees and tall shrubs) *Alstonia constricta* var. *mollis*, *Aphananthe philippinensis*, *Araucaria Cunning-*

hamii, *Clerodendron floribundum*, *Erythrina vespertilio*, *Excaecaria Dallachyana*, *Ficus eugenioides*, *Flindersia australis*, *Mallotus laeoxylodes*, *Melia dubia*, *Pentaceras australis*, *Scolopia Brownii*, and *Strychnos arborca*; (small soft-wooded shrubs) *Abutilon acutatum* and *Solanum stelligerum*; (lianas, all prickly) *Capparis sarmentosa*, *Mezoneuron Scortechinii*, and the introduced *Lantana camara*; (herbs, not grass-like) *Chenopodium cristatum*, *C. triangulare*, *Cotula australis*, *Galinsoga parviflora*, *Malvastrum coromandelinum*, *Plantago varia*, *Sida rhombifolia*, *Stellaria media*, *Tagetes glandulifera*, and *Urtica incisa*; one sedge, *Cyperus gracilis*, and the following grasses, *Chloris gayana*, *Eleusine indica*, *Paspalidium distans*, *Paspalum dilatatum*, *Microlaena stipoides*, and *Sporobolus elongatus*. Many of the herbaceous plants occurred chiefly at the edge, and are obviously strays; probably only *Chenopodium* spp., *Urtica*, *Cyperus*, and the *Paspalidium* are species of the original forest.

2. The Open Forest (Figs. 1, 2, 4) occurs in the wider parts of the valley, on the slopes, and at times on the crests of the ranges. It is dominated by species of *Eucalyptus* forming tall straight trees, and has a broken to fairly continuous though rather light canopy. There is little or no undergrowth, but everywhere there is a dense grass cover which completely dominates the ground cover. Some considerable variation can be seen in the forest, and two leading types can be distinguished.

In the broader lower parts of the valley the characteristic community is *Eucalyptus tereticornis*—*Angophora subvelutina* (blue gum—apple) forest, and this extends over the flatter parts and also up the lower slopes to a more or less extent (Figs. 2 and 4). The eucalypt forms massive tall trees which are rather widely spaced. The apple is a small gnarled crooked tree which occurs scattered between the gums, so that there is a very discontinuous canopy. This forest type has been more or less affected by settlement throughout its extent, and introduced plants are prominent in the ground cover. This latter is dominated by the two grasses *Pennisetum alopecuroides* (swamp fox-tail, 4–5 ft. high) and the introduced *Paspalum dilatatum* (paspalum), with sometimes the latter (in the least unaltered areas) and sometimes the former tending to disappear; abundant also are the grasses and grass-like sedges *Imperata cylindrica* var. *major* (blady grass), *Themeda australis* (kangaroo

grass), *Sporobolus elongatus* (rat-tail grass), *Fimbristylis diphylla* var. *polystachya*, and *Cyperus* sp. (= *Kyllinga cylindrica*); the two legumes *Desmodium varians* and *Trifolium procumbens* (an introduced clover), with *Hydrocotyle asiatica*, *Taraxacum officinale*, *Verbena venosa* (wild verbena, introduced) and *Geranium dissectum*; while there also occur *Digitaria violascens*, *Capillipedium* sp., *Bothriochloa decipiens* (pitted blue grass), *Panicum effusum*, *Fimbristylis monostachya*, *Hypericum gramineum*, *Lespedeza sericea*, *Verbena officinalis*, and *Cnicus lanccolatus* (Scotch thistle).

Further up the slopes the character of the forest changes (Fig. 1). The apple drops out and the blue gum is replaced by other eucalypts, chiefly *E. microcorys* (tallow-wood), *E. major* (a grey gum), *E. gummiifera* (bloodwood), *E. Andrewsii* ? (New England stringybark; perhaps the closely similar *E. campanulata*), *E. carnea* (red stringybark) and occasionally *E. paniculata* (grey iron-bark); but in addition *Casuarina torulosa* (forest she-oak) commonly forms an understory of smaller graceful trees. On Mt. Gipps *Xanthorrhoea arborca* (grass-tree) appeared in the forest at about 1,300 ft. and persisted to the edge of the rainforest, while near the upper edge of the open forest on this mountain there also occur a few trees of *Banksia integrifolia*. A few shrubs occur here and there in the forest, but they are usually very scattered and chiefly on the middle and higher slopes; *Swainsona coronillifolia* (a Darling Pea) is one of the commonest. The others are all normally lianas, but here form small to large tangled masses on the hillsides: they are *Clematis aristata*, *Rubus parvifolius* (raspberry), *Eustrephus latifolius*, *Smilax australis*, and (rarely) *Lonchocarpus Blackii*; the two last-mentioned are strays from the open forest—closed forest ecotone. The herbaceous cover varies somewhat in detail from place to place, but except for occasional patches of bracken (*Pteridium aquilinum* var. *esculentum*) or blade grass (*Imperata cylindrica* var. *major*) it is completely dominated by kangaroo grass, *Themeda australis*. This grass forms a dense mass of closely spaced tufts 3-4 ft. high or more with branched leafy stems. A certain amount of wax is produced on the stems and leaf-sheaths, and this makes the grass very slippery under foot. Associated and more or less abundant grasses are *Capillipedium* spp. (scented golden beard), *Hyparrhenia*

filipendula, *Poa australis* (on the higher slopes), *Eragrostis leptostachya* and *E. Brownii* (love grasses; usually in more open places), *Cymbopogon refractus* (barb-wire grass), *Cenchrus australis* (burr grass), *Setaria pallidifusca*, *Oplismenus imbecillis* (scrambling under the taller grasses), and less commonly there occur other species such as *Paspalidium distans* on the slopes of Mt. Chinghee, *Arthraxon hispidus* near the foot of the same mountain, and *Aristida ramosa* on one of its spurs. Other fairly common grass-like plants are *Cyperus fulvus*, *C. gracilis*, *C. enervis*, and *Carex breviculmis*. Legumes are quite prominent, and apart from the woody ones mentioned above (*Swainsonia*, *Lonchocarpus*), there occur the erect *Lespedeza sericea*, the trailing *Desmodium rhytidophyllum* and *Zornia diphylla* and the twining *Hardenbergia bimaculata* (wild sarsaparilla; more commonly known as *H. monophylla*), *Glycine tabacina*, *G. clandestina*, and *Vigna vexillata*. Other herbaceous plants of greater or lesser frequency are (a) rosette plants—*Ranunculus lap-paccus* (buttercup), *Hypochaeris radicata* (dandelion) and *Apium leptophyllum* (wild parsley); (b) the prostrate or creeping *Hydrocotyle hirta* and *Veronica plcbcia*, the ascending *Verbena venosa* (wild verbena, introduced), and (c) the more or less erect *Senecio lautus*, *Siegesbeckia orientalis* (farmer's flea, chiefly near ecotones), *Gnaphalium lutcoalbum*, *Centranthra hispida*, *Wahlenbergia multicaulis* (bluebell), *Adiantum acthiopicum* (maiden-hair fern) and *Botrychium australe*.

Where Open Forest and Closed Forest meet there is a narrow intermediate zone or ecotone, where under trees of the open forest usually with *Tristania conferta* (scrub box) associated there occur smaller trees and shrubs, some of which are characteristic of the Closed Forest, while others are more or less restricted to such zones. The species are quite numerous, and among those in an ecotone on Mt. Chinghee* are *Melia dubia* (white cedar), *Cryptocarya triplinervis*, *Mallotus discolor* and *Arytera divaricata* (trees); *Hibiscus heterophyllus*, *Abutilon acutatum*, *Cassia retusa*, *Pavetta indica*, *Psychotria daphnoides*, *Ellatostachys xylocarpa*, *Alchornea aquifolium* (shrubs, mostly tall); *Smilax australis*, *Cudrania javanensis* (wait-

*Mt. Chinghee on the Lands maps; locally the mountain is known as "Bung-Bung", which is said to be an aboriginal word meaning "place of the dead" or "burial ground".

a-while), *Lantana camara* (lantana; introduced), *Rubus Hillii* and *R. parvifolius* (raspberries) (prickly lianas); *Tragia novae-hollandiae* (liana with stinging hairs); *Dianella caerulea*, *Cyperus tetraphyllus*, *C. encervis*, *Carex declinata*, *Imperata cylindrica* var. *major* (blady grass, at open forest edge only), *Oplismenus imbecillis*, *Panicum lachnophyllum* (grasses and grass-like herbs); *Alpinia caerulea* (wild ginger); *Doodia intermedia*, *Adiantum formosum*, and *Dryopteris decomposita* (ferns); and *Siegesbeckia orientalis* (farmer's flea, a common herb with viscid fruit).

3. Vegetation of the Stream Banks and Beds (Figs. 2, 3, 4, 7 and 8). Along Running Creek itself is a definite fringing forest differing from that away from the creek. In the lower part of the area studied, this forest (Figs. 2 and 3) consists of a line or narrow belt of trees of chiefly *Casuarina Cunninghamiana* (river she-oak) and the smaller and usually crooked *Callistemon viminalis* (red bottle-brush, red tea-tree). Where the Closed Forest comes down to the creek, and also on some of the tributary streams from the north, magnificent tall, straight, white-barked trees of the flooded gum (*Eucalyptus saligna*? or else *E. grandis*) become prominent. Shortly above the junction of the two branches, scrub box (*Tristania conferta*) and flooded gum, together dominate the fringing forest in places (cf. Fig. 7). Still further up these trees disappear, and except for the prevalence of the maiden's blush (*Sloanea australis*) and piccabeen palms (*Archontophoenix Cunninghamiana*), the trees on the bank are much the same as those of the rain-forest on the sides of the gorge. In these places also, *Helmholtzia glaberrima* occupies steep damp slopes (Fig. 8). Along the tributary gullies the Fringing Forest of the creek extends for a shorter or longer way, but in open forest country it is composed almost exclusively of *Casuarina*. Close to the water's edge there occur in the *Casuarina*-dominant parts a few tall grasses or grass-like plants, notably *Cyperus exaltatus*, *C. cleusinoides*, and *Echinochloa* sp., the smaller *Carex polyantha*, *Lomandra longifolia* (sword grass), *Pennisetum alopecuroides* and *Paspalum dilatatum*. *Lantana* also occurs in places.

Carex and *Lomandra* persist well up the stream beyond the open forest, growing among boulders in the bed or on the banks; here one of the most characteristic plants is *Elatostemma reticulatum*, which also forms large



Fig. 1.—Northern slopes of Mt. Gipps, altitude about 1,400 ft. Mixed Eucalyptus Forest with dense growth of kangaroo grass; the small shrub in the foreground is *Swainsona coronillifolia*.

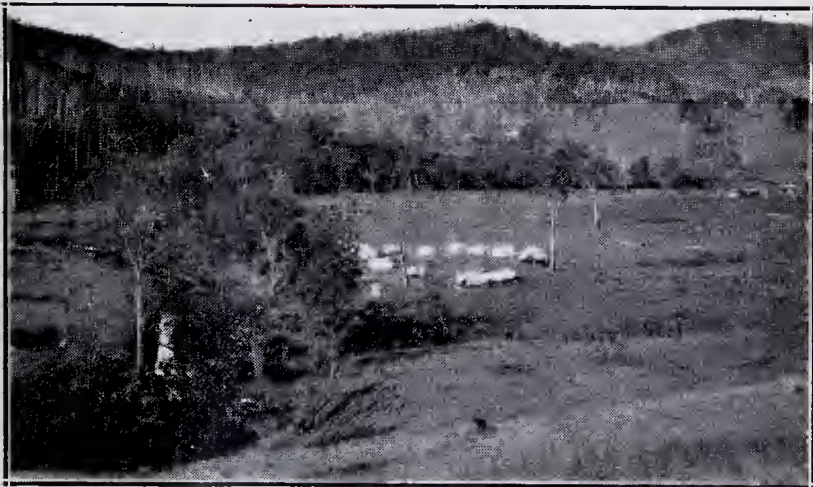


Fig. 2.—The camp, on flattish ground, in almost completely cleared blue gum—apple forest. The ground is densely covered with *Paspalum dilatatum* and tussocks of *Pennisetum alopecuroides*; in the immediate foreground is kangaroo grass on a hill-slope.

Photos : S.T.B.

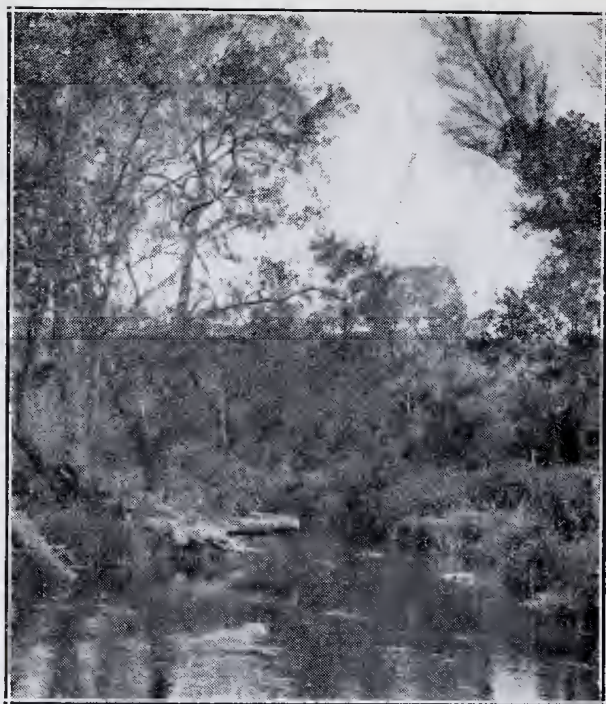


Fig. 3.—Running Creek, just below the camp, showing somewhat damaged Fringing Forest. The trees are *Casuarina Cunninghamiana* and *Callistemon viminalis*, while at the water's edge are clumps of *Lomandra longifolia*, of *Carex polyantha*, and of *Pennisetum alopecuroides*. There is some *Lantana* on the bank to the right.



Fig. 4.—Upstream from the camp. Dense growth of *Pennisetum alopecuroides* on a gentle slope running down to the creek along which is a Fringing Forest in which Flooded Gums are prominent. On the range beyond, partly obscured by rain, is Closed Forest with much Hoop Pine.

Photos : S.T.B.



Fig. 5.—Side of range on north bank of the North Branch, altitude about 1,300 ft. Closed Forest showing sparse ground flora, development of lianas, and a tree with buttresses. There is a fairly large tree of Hoop Pine in the background.



Fig. 6.—View from the crest of the divide between Chinghee Creek and Running Creek, looking across the valley of the latter. McPherson Range in the distance, carrying Eucalyptus Forest. To the left is a tongue of rain forest which formerly extended over most of the country in the middle distance; much of this is now *Paspalum* pasture with patches of bracken, but on the ridge across the centre the darker tint is due to a dense growth of Stinking Roger and **Lantana**.

Photos : S.T.B.

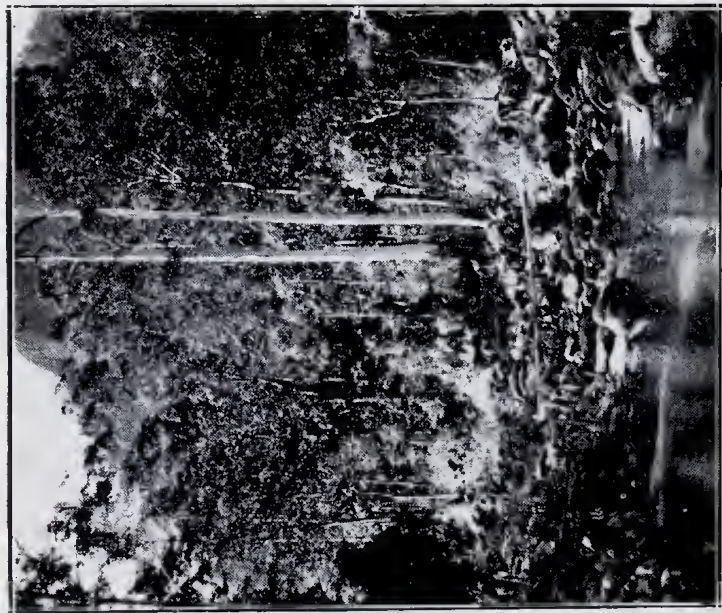


Fig 7.—Running Creek at the junction of the North Branch (to the left) and South Branch, showing the rocky nature of the upper part of the creek. Flooded Gum in the centre, associated with *Tristania conferta* in Fringing Forest.



Fig 8.—Running Creek Falls. Note steep edge of the Plateau which carries *Eucalyptus* Forest above. Along the side of the gorge, as at right, is Closed Forest with piccabee palms (*Archontophoenix*) conspicuous. Noticeable also by the grasslike leaves are clumps of *Helmholtzia*.

masses over the rocks at the foot of the falls. *Epilobium junceum* also occurs in rock crevices.

4. Swamps.—Only one small swamp occurs in the area, not far from the Border Tunnel, and it is apparently shallow. Around its edge are a few tall blue gums, and near the water's edge among clumps of *Pennisetum alopecuroides* is a thick mat of water-couch (*Paspalum distichum*) and plants of *Ranunculus rivularis*. Then, in the shallowest water, is a pale green zone of closely matted partly floating plants of the grass *Panicum Buncei* with the yellow-flowered *Jussiaea repens*, and a few clumps of the rush *Juncus polyanthemus*. Then, in the deeper water is a stand of the rush-like sedge *Elcocharis equisetina*, with occasional *Polygonum minus*.

Other aquatic vegetation was not closely studied. In gently flowing parts of the creek *Potamogeton crispus* and *Hydrilla verticillata* are not uncommon, while in backwaters *Azolla rubra* and *Lemna* sp. also occur.

5. Artificial and Induced Vegetation (Figs. 2 and 6).—The country drained by the headwaters of Chinghee Creek has been almost completely cleared except for the small remnants of closed forest alluded to above. A great part has been sown to Rhodes grass with *Paspalum* on the lower ground. There is an intermediate zone near the bottom of the ridges. No other herbaceous plant was observed associated with Rhodes grass. On and near the crest of the divide, and also in parts of the valley of Running Creek where clearing has occurred, in places where rain-forest formerly existed, the vegetation is composed of an almost impenetrable mass of stinking roger (*Tagetes glandulifera*) 8–10 ft. high (cf. Fig. 6). Lantana thickets occur scattered through this and sometimes entirely replaces it. Much of this proved quite impenetrable unless it were possible to cut one's way. Cape gooseberry (*Physalis virginiana*) and raspberries (*Rubus* spp.) also occur in places, but wild tobacco (*Solanum auriculatum*) is relatively rare.

When open forest is cleared the first tendency seems to be merely a thickening (if possible) of the original herbaceous cover; *Capillipedium* and *Hyparrhenia* are sometimes more prevalent than in the natural forest. Later, *Paspalum* becomes prominent, and in the lower places tends to dominate the flora; one of the introduced clovers, *Trifolium procumbens*, is often associated here. In the valley of Chinghee Creek, country formerly

occupied by open forest has been planted to Rhodes grass.

General Note.—The valley of Christmas Creek has been hurriedly examined on an earlier occasion from about its junction with its tributary, Gap Creek, to a little above the junction of the North and South Branches, also on the North Branch. On that occasion a traverse was made across the divide down to Running Creek. The vegetation of the two valleys appear to be very similar, except that there is relatively a greater area of cleared or partly cleared country in the valley of Christmas Creek, and *Eucalyptus crebra* was noted there in the Eucalyptus forest.

REPORT ON ZOOLOGY (*ARTHROPODA*)
EXCURSION TO RUNNING CREEK, EASTER, 1941.

By E. F. Rick.

The most notable find was a number (14 in all) of "Peripatus", *Peripatoides leuckarti* Sanger, on the river-flat just below the camp. It is interesting to record that these somewhat rare animals were sheltering under stones on the raised river-flat where the conditions were not at all moist. It is said that they prefer moist conditions.

On the trip to Running Creek Falls a number of spiny crayfish, *Euastacus sulcatus* Clark, similar to those occurring at Binna Burra, were collected. Some were taken in the water, others in the rain-forest, but quite close to the creek. When removed from the water the crayfish makes a hissing noise resembling that of a scarab beetle. They were most abundant at and around the falls and were not seen below 1,500 feet. The same species was collected from the small creeks at the top of Mt. Gipps.

In the lower reaches of the creek their place was taken by the fresh-water prawn, *Palaemon danae* (Heller).

The crayfish were surprisingly parasitised. Four distinct species of parasite were collected, but three of these were really only mess-mates. Two of the commensals are very much alike. They are leech-like but have tentacles. The larger form, *Temnocephala fasciata* Haswell, grows to half an inch in length and has five tentacles. The smaller form, *T. comes* Haswell, has six tentacles. There may be up to one hundred of these commensals on the one crayfish. These species of *Temnocephala* are distinct from those occurring on the crayfish around Brisbane. The third commensal is a worm, an oligochaete,

related to the earthworms but living in the water and not in the soil. They grow to a little over half an inch in length and prefer to live in the cavities around the eyes of the host. The fourth species is a true parasite living attached to the inner side of the carapace. It is a mite. The larger specimens look like distended ticks firmly imbedded in the tissues of the crayfish.

REPORT ON BIRDS SEEN AT RUNNING CREEK, EASTER CAMP, 1941.

By George H. Barker and N. Jack.

Those members of the Naturalists' Club at the Easter Camp this year who are interested in Birds found nothing to surprise them in the Bird life of the area. The list discloses nothing that we did not expect to see and fails to show a number that are known and previously recorded from the area. Why this was so, is difficult to explain, excepting that the extensive clearing of the surrounding country both along the creek and along the foot hills is probably the real reason. This denudation means disappearance of food supply for many birds formerly abundant here, and they have died out without breeding, as has happened in so many other regions in this State.

Our list runs to sixty-five different species, but as many of these were solitary specimens or just pairs, it looks better than it really is, and it is safe to say that the number of species at all plentiful were well under twenty. This is very sad, but no doubt inevitable in the March of Settlement.

LIST.

- | | |
|-------------------------|--------------------------------|
| 1. Brush Turkey. | 33. Grey Shrike Thrush. |
| 2. Stubble Quail. | 34. Magpie Lark. |
| 3. Bar Shouldered Dove. | 35. Eastern Whipbird. |
| 4. Wonga Pigeon. | 36. Black-faced Cuckoo-Shrike. |
| 5. Dusky Moor Hen. | 37. Southern Chowchilla. |
| 6. Spur-winged Plover. | 38. White-throated Warbler. |
| 7. White-faced Heron. | 39. Brown Thornbill. |
| 8. Black Duck. | 40. Yellow-tailed Thornbill. |
| 9. Nankeen Kestrel. | 41. White-browed Scrub Wren. |
| 10. Wedge-tailed Eagle. | 42. Supperb Blue Wren. |
| 11. Brown Hawk. | 43. Red-backed Wren. |
| 12. Sooty Owl. | 44. Dusky Wood Swallow. |

- | | |
|--|-------------------------------|
| 13. Scaly Breasted Lorikeet. | 45. Mistletoe Bird. |
| 14. Black Cockatoo (Yellow-tailed). | 46. Black-headed Pardalote. |
| 15. White Cockatoo. | 47. Grey-breasted Silveryeye. |
| 16. Crimson Rosella. | 48. Eastern Spinebill. |
| 17. Pale-headed Rosella. | 49. Lewin Honeyeater. |
| 18. King Parrot. | 50. Yellow-faced Honeyeater. |
| 19. Eastern Rosella. | 51. Bell Miner. |
| 20. Azure Kingfisher. | 52. Noisy Miner. |
| 21. Kookaburra. | 53. Blue-faced Honeycater. |
| 22. Fantail Cuckoo. | 54. Noisy Friar Bird. |
| 23. Lyrebird sp.? (heard only) | 55. Australian Pipit. |
| 24. Welcome Swallow. | 56. Double-bar Finch. |
| 25. Grey Fantail. | 57. Red-browed Finch. |
| 26. Wagtail. | 58. Olive-backed Oriole. |
| 27. Restless Fly-catcher. | 59. Green Cat-bird. |
| 28. Jacky Winter. | 60. Satin Bower Bird. |
| 29. Northern Yellow Robin. | 61. Australian Crow. |
| 30. Southern Yellow Robin. | 62. Pied Currawong. |
| 31. Golden Whistler. | 63. Pied Butcher Bird. |
| 32. Rufous Whistler. | 64. Grey Butcher Bird. |
| | 65. Black-backed Magpie. |

NOTES ON THE LIFE-HISTORIES OF SOME LYCAENID BUTTERFLIES—PART I.

By Miss M. Smales and Dr. C. P. Ledward,
Burleigh Heads.

These notes are offered in the belief that some of the observations are new or hitherto unpublished. We are indebted to Mr. C. T. White and Mr. W. D. Francis for identifying a number of food-plants, to the late Mr. W. F. Blakely of the National Herbarium, Sydney, for identifying the mistletoes, and to Mr. J. Clark of the National Museum, Melbourne, for identifying the ants. Observations have been confined to the South Coast, from Southport to the Tweed.

Pseudodipsas cephenes Hewitson.

So far we have located larvae on a single tree only, a rain-forest tree about 20 feet high, identified as *Maba fasciculosa*. This tree is the home of large numbers of a dull black ant, *Iridomyrmex gilberti*, which is nesting in holes in the trunk. This ant, which is in constant attendance on the larvae, is larger than *Crematogaster laeviceps*, the ant found with the larvae of *Pseudodipsas*.

digglesi. Eggs are laid singly, or in twos and threes, on twigs and leaf-stalks. Small larva green, with dark brown markings at each extremity. Full-grown larva about one inch long; not so flattened as that of *digglesi*; sides bright green with two yellow longitudinal stripes; back dark brown with conspicuous grey dorsal band with prominently scalloped margins. (Some larvae are duller and not so brightly marked.) The larvae are found on the under sides of the leaves, in sheltered positions along the twigs and branches or in holes in the trunk. They usually pupate in holes in the trunk. Pupa similar in shape to that of *digglesi* but smaller and darker brown. (Two pupae from deep in a hollow branch were pinkish white and abnormally small.) Pupal duration in summer eleven to fifteen days, in winter thirty days. Larvae in captivity will eat Mistletoe (*L. vitellinus*); in this way Dr. G. A. Waterhouse was able to rear a larva in Sydney.

Pseudodipsas myrmecophila illidgei Waterhouse and Lyell.

Larvae and pupae of this species have been discovered accidentally. When searching mangroves at Burleigh for pupae of *H. epicurus*, we came across four pupae of *illidgei* in an ants' nest in a hollow branch. Subsequently, when searching the bark of a bloodwood at Southport for pupae of *O. oroetes*, we found both larvae and pupae of *illidgei*. In each instance, the larvae and pupae were in the nests of a small dark brown or black ant, determined by Mr. J. Clark as indistinguishable from *Crematogaster laeviceps*. On the bloodwood the ants occur in small colonies under patches of bark only two or three inches square; not more than three or four larvae or pupae have been found in the one colony, and they are usually surrounded by the larvae and pupae of the ants. We have succeeded in rearing only three larvae in captivity, having had difficulty in establishing a colony of ants for them. The larvae are sluggish and, when deprived of the ant, become inactive and die. We can offer no evidence as regards the nature of their food, as we have never observed them eat anything—despite various experiments. There seem to be three possibilities: (1) the larvae are in some way fed by the ants, as suggested by Dr. Waterhouse; (2) they eat the larvae and pupae of the ants; or (3) they eat bark or wood. In favour of the last possibility is the fact that the larvae have the same shiny, greasy appearance of other wood-eating larvae, and that the set butterflies tend to develop grease.

Larva, dirty white and shiny, developing a pink tinge as it enlarges, which deepens prior to pupation; a fringe of fine hairs at each side above feet and at each extremity. Pupa of distinctive appearance, being elongate with relatively small thorax and large abdomen; shiny golden brown in colour. Pupal duration (in spring) forty days.

The butterflies, on first emerging, have a quantity of fluffy material adhering to their antennae, head, thorax, base of wings and legs.

At Ocean Grove, in Victoria, Dr. Waterhouse⁽¹⁾ found larvae of *Pseudodipsas myrmecophila myrmecophila* in the nests of *Iridomyrmex nitidus*, and recently Mr. J. Macqueen has found larvae of this form at Millmerran under similar circumstances. We think it possible that *illidgei*, whose larvae live in the nests of quite a different ant (*C. laeviceps*), may prove to be specifically distinct. It is, at least, a very distinct race, and may represent a new species in the making. These two forms, *myrmecophila* and *illidgei*, seem sufficiently different from *digglesi* and *cephenes* as to warrant their inclusion in a separate genus

Hypochrysops epicurus Miskin.

For some years Mr. L. Franzen has taken this species at Burleigh, and he suspected that the larvae would be found on one of the different varieties of mangrove near which the butterflies were flying. We were pleased that, after much tedious searching, we were able to confirm his suspicions. The larvae feed on the common tree-mangrove, *Avicennia officinalis*. They are always attended by a small dull black ant, *Iridomyrmex itinerans*, and when looking for larvae it is useless searching a tree on which any other species of ant is present. The larvae eat only the under-sides of the leaves and shelter either in rolled leaves or in hollows in the branches or trunk; they pupate in similar situations. Pupae of the spring brood are not easy to obtain as they are mostly in hollows in the branches; in later summer more pupae are found in the leaves. Eggs are laid in clusters on twigs and leaf-stalks. Larva usually pinkish brown with dark brown dorsal band, of which two or more segments are often cream-coloured (some larvae are green); fringe of hairs white. Pupa brown, darker in colour than those of *H. cyane* received from Mr. J. Macqueen. We have not yet succeeded in rearing larvae in captivity, but have located

them from Southport to the Tweed wherever the right species of mangrove is growing.

Hypochrysops apelles Fabricius.

In comparison with *epicurus*, the larvae of this species are easily reared; but they feed on different mangroves and are attended by a different ant. The mangroves belong to the family *Rhizophoraceae*. We have found larvae on three species—*Rhizophora mucronata*, *Bruguiera Rheedii* and *Ceriops Candolleana*. The ant in attendance is *Crematogaster laeviceps*.

Hypochrysops delicia delicia Hewitson.

In addition to *Acacia Cunninghamii*, larvae are often to be found on *A. aulacocarpa*. The ant in attendance is *Crematogaster fusca*, similar in appearance to *laeviceps* but larger.

Hypochrysops ignita chrysonotus Grose-Smith.

Near Brisbane Mr. L. Franzen has found larvae of this species on *Exocarpus latifolia*. Although he kindly showed us the places at Burleigh where he had caught the butterfly, it was many months before we were able to locate the larvae. So far most larvae have been found on *Eucalyptus* spp., usually small saplings of Blue Gum or Ironbark. A few larvae have been found on four other food-plants also—*Alphitonia excelsa*, *Cupaniopsis anacardioides*, *Elaeocarpus obovatus* and *Acacia aulacocarpa*. The ant in attendance in every instance has been *Iridomyrmex nitidus*.

Hypochrysops protogenes miskini Waterhouse.

We are again indebted to Mr. L. Franzen who, two years ago, showed us where he had taken this species. However, it is only recently that we have succeeded in learning anything of the life-history, which we are still investigating.

The food-plant is *Smilax australis*, a common and widespread creeper or climber. The ant in attendance is *Iridomyrmex gilberti*, a species that seems to be confined to rain-forest. It is likely, therefore, that *miskini* itself is a species confined to rain-forest areas.

Eggs are laid singly or in clusters of three to five on the under-sides of the leaves, on the leaf-stalks and on the stems of the food-plant; they are sometimes also laid on twigs and branches of trees over which the *smilax* is climbing.

Small larvae flat, green, with a dorsal band of which some segments are dark brown and others whitish, and

with a fringe of hairs.

In a subsequent issue we hope to have further notes on *H. miskini* and also on the genus *Candalides*, with special reference to *margarita*, *absimilis*, and a new species, as yet unnamed, allied to *absimilis* but with a strikingly different larva.

Below is a list of Lycaenids and the different species of Mistletoes on which their larvae have been found in the Burleigh district:—

Ogyris genoveva: *Loranthus vitellinus* (usually),
 L. pendulus, *Miquelii* and *ferruginiflorus* (occasionally),
 Phrygilanthus celastroides (rarely).

O. zosine: *L. vitellinus* (usually), *L. cambagei* (rarely).

O. abrota: *L. vitellinus* (only).

O. oroetes: *L. pendulus*, *Miquelii*, *ferruginiflorus*.

O. olane: *L. pendulus*, *L. Miquelii*.

O. amaryllis: *L. cambagei* (only).

Pseudodipsas digglesi: *L. vitellinus* (usually),
 Phrygilanthus celastroides (occasionally).

Candalides margarita: *L. vitellinus*, *L. congener*,
 L. dictyophlebus, *L. alyxifolius*, *Phrygilanthus celastroides*.

Nacaduba palmyra tasmanica: *L. vitellinus* (only).

(1) G. A. Waterhouse and G. Lyell: "Description of a new Lycaenid Butterfly, with notes upon its life-history," Victorian Naturalist, vol. xxix., No. 10, Feb. 6th, 1913.

A PREVIOUSLY UNDESCRIBED ORCHID FROM NORTH QUEENSLAND

By the Rev. H. M. R. Rupp, Northbridge, N.S.W.

SACCOLABIUM TIERNEYANUM, sp. nov.

Planta epiphytica aliquanto magna, caule non 30 cm. excedente. Radices crassi, saepe aerii. Folia 7-14 cm. longa, oblonga, ad apices impariter bifida. Racemi foliis breviores. Flores parvi, virides, intus fusco-maculati, Sepala petalaeque concava. Sepala 3-4 mm. longa, petala breviora. Labellum 2-3 mm. longum, trilobatum; lobus medius angustus, flavus, lobi laterales breves latique. Calcar 4 mm. longum, ad apicem dilatatum et supra canaliculatum. Columna crassa brevisque. Pollinia 4.

Rather large epiphyte, with a stem not exceeding 30 cm. in length, and thick, often aerial, roots. Leaves vary-



SACCOLABIUM TIERNEYANUM, sp. nov.

1. Part of a plant, showing raceme. (The raceme has been placed above a leaf; actually it is below it). (Natural size). 2. Flower, from the front. 3. Flower, from the side. (All enlarged). 4. Column and labellum from the side.

ing in length from 7-14 cm., oblong, usually unequally bifid or emarginate at the tips. Racemes shorter than the leaves, bearing 6 to about 12 small flowers, pale green outside, inside mottled with brown. Sepals and petals concave, the former about 3-5 mm. long, the petals shorter and a little narrower. Labellum 2-3 mm. long, trilobate, the mid-lobe relatively long and narrow, *yellow*; the lateral lobes short and broad. Spur at least 4 mm. long, slightly curved, channelled above and dilated towards the blunt apex. Column very short and stout. Pollinia 4.

This plant resembles in general appearance F. Mueller's *Cleisostoma MacPhersonii* (now *Sarcanthus MacPhersonii*); but there is greater variation in the leaves, the colour-scheme of the flowers is different, and the spur lacks the large gland at its entrance which marks Mueller's plant as a *Sarcanthus*. It was discovered in the Pine Creek area near Cairns, in April, 1934, by Mr. W. F. Tierney, of that town. Owing to absence from home I was unable at the time to deal satisfactorily with Mr. Tierney's specimens, and further material has not been available until recently, when Mr. S. R. Brock, of the Technical College, Mackay, sent a raceme to the Brisbane Herbarium for determination, and it was forwarded to me. Subsequently Mr. Brock kindly sent me portion of the plant, which was obtained on Hinchinbrook Island. It is undoubtedly identical with the Pine Creek specimens. I had originally intended to name the plant *Cleisostoma Tierneyanum*; but in view of the fact that the genus *Cleisostoma* has no longer any recognised standing (see article, "The Breaking-up of the Genus *Cleisostoma* in Australia" in "The Victorian Naturalist" for April, 1941). I think the present species is best placed in *Saccolabium*. There is no very striking feature making a descriptive specific name desirable; and I have therefore named it in honour of one who has done a great deal of valuable collecting for purposes of investigation among the Orchidaceae of the Cairns area.

NOTE ON DENDROBIUM CARRII Rupp & White

By the Rev. H. M. R. Rupp (Northbridge, N.S.W.)

This orchid from North Queensland was described by Mr. White and the writer in the "Queensland Naturalist," vol. x., No. 2. The description and the drawing of the flowers were made from withered specimens. After four

years of waiting, the small plant which Mr. White sent has this season succeeded in producing a little raceme, and for the first time I have been able to examine the living flower. The following is an amended description:—

Sepals and petals equal in length, about 11-14 mm.; petals narrower and thinner in texture than sepals; spur obtuse, less than half as long; all white. Labellum quite as long as the other segments, conspicuously trilobate; lateral lobes and lamina pale, the former erect and slightly incurved, striate with red splashes and lines; mid-lobe pale yellow, with upturned sides; a few red spots at the base inside. Column rather long, with fine longitudinal red lines from base to summit; anther blunt; stigma nearly circular.

The drawing of the enlarged flower in the previously published description is at fault in the following respects: Segments too narrow (doubtless owing to the withered state of the flowers); spur too long, and too narrow at the base of the sepals; conspicuous lateral lobes of the labellum hardly shown at all.

THE QUEENSLAND NATURALIST

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AND NATURE-LOVERS' LEAGUE

VOL. XII.

MAY, 1942

No. 2

PROCEEDINGS.

ANNUAL MEETING, 17th FEBRUARY, 1942

The chair was occupied by the President (Mr. S. T. Blake), and forty members were present. The Annual Report was read by the Hon. Secretary, showing that the Club activities had been well maintained during the year—exceptionally well, considering the circumstances. The membership roll stood at 143. The Hon. Excursion Secretary (Mr. G. H. Barker) gave a brief account of the outdoor activities of the Club during the year. The Hon. Librarian reported that the Library had been well patronised during the year. The financial statement, read by the Hon. Treasurer (Miss E. N. Marks), showed a credit balance of £47/15/1. Office-bearers were elected as set out on the inner page of the front cover of this issue. The incoming President (Dr. E. O. Marks) then took the chair. The retiring President then delivered his Presidential Address on "Deserts," illustrated by lantern slides. Flowers of the Wheel of Fire Tree were exhibited by Mr. J. E. Young; fibre made from *Urena lobata* (a common weed of North Queensland) by Mr. J. L. Schofield; seed-pods of the pink water-lily by Miss MacCallum; and a snail-shell, a specimen of Bauxite, and a spider's nest, all from Tamborine Mountain, by Mr. J. Westbrook. A report of the Christmas excursion to Tamborine Mountain was given by Miss E. E. Baird, and of the monthly excursion to the new University by Mr. S. T. Blake and Dr. E. O. Marks.

ANNUAL REPORT FOR THE YEAR ENDING JANUARY 31st, 1942

Ladies and Gentlemen,—

The Council of the Queensland Naturalists' Club submits the Thirty-sixth Annual Report of the Club's work.

Natural history pursuits have been carried forward during the year at evening meetings and field excursions.

Meetings.—There have been ten Ordinary Meetings, one Special Meeting, ten Field Excursions, and eleven Council Meetings during the year. Attendance at Council Meetings have been as follows:—Mr. S. T. Blake, 11; Mr. J. H. Simmonds, 1; Dr. E. O. Marks, 10; Miss E. E. Baird, 11; Miss E. N. Marks, 10; Mr. G. H. Barker, 9; Mrs. G. L. Jackson, 5; Dr. W. H. Bryan, 5; Dr. D. A. Herbert, 6; Mr. G. L. Jackson, 10; Mr. J. E. Young, 5; Mr. H. E. Young, 2; Mr. W. J. Sanderson, 4; Mr. C. T. White, 6. Mr. Simmonds was granted leave of absence for Military duties; such duties also caused other members to be absent. Attendances at evening meetings has been good, the average being 44. Interesting and instructive lectures and papers dealing with various branches of natural history have been given during the year. Many were illustrated by lantern slides, and others by specimens. The lecturers included Dr. D. A. Herbert, Messrs. H. E. Young, J. Hanson Lowe, F. A. Perkins, Prof. H. C. Richards, W. Murphy, D. S. A. Drain, and C. T. White. At the Special Meeting, Mr. R. E. Holttum spoke of the flora of Malaya, showing slides of great interest.

The April meeting was devoted to reports of the Easter excursion; the September meeting to exhibits, mostly wild flowers.

Reports of Field Excursions were given, and interesting specimens found and photographs taken, were tabled at evening meetings by many members.

Membership.—Nineteen new members have been elected during the year, and four resignations received. There are now 143 members of the Club.

Nature Lover's League.—As Mr. Bevington is no longer at the Museum, there is less interest shown in the League and fewer certificates sold.

"Queensland Naturalist."—One issue of the journal was published during the year.

General.—As is its custom, the Council of the Club has watched for infringements of the Bird and Animal Protection Acts. At the request of the Club Council, the fence at the Bora Ring at the Nudgee Waterhole was repaired, and a notice board placed there.

There follow the reports of the Hon. Librarian, the Hon. Excursion Secretary, and Hon. Treasurer.

S. T. BLAKE, President.

E. E. BAIRD, Hon. Secretary.

REPORT OF HON. LIBRARIAN FOR 1941

The Library still continues to be well patronised by members, approximately 50 books and 170 magazines having been lent during the year.

The gifts of magazines and books made by members to the Library are very much appreciated. We have several regular donors, and the thanks of the Club are hereby tendered to them.

E. M. JACKSON, Hon. Librarian.

REPORT OF EXCURSIONS FOR THE YEAR ENDING DECEMBER, 1941.

Ten Outings were held during the year and on the whole were well attended. When the necessary allowance is made for the effect of the war on our membership, the attendance can be regarded as surprising. The most spectacular and perhaps the most successful of them all was the Easter Outing to the Border Tunnel on Running Creek, where members were under Canvas for the Holiday. The next in importance was the May weekend on Tamborine Mountain. As full reports of these have appeared in the "Queensland Naturalist" there is no need to dilate on them here.

Other week-ends were spent at Caloundra, Point Lookout, and again to Tamborine Mountain at Christmas. Saturday afternoons were spent at Camp Mountain, Mt. Gravatt, Sunnybank, Sandgate, and Sherwood Arboretum.

As a result of our visit to the latter, representations were made to the City Council asking for certain improvements in the care and preservation of both the Arboretum and the Chelmer Swamp. Subsequently representatives of the Club accompanied the City Engineer, Mr. Price, to both reserves and had the pleasure of having their suggestions endorsed by that gentleman, and a promise made to give effect to same as

opportunity offered. Appended is diary of the Outings mentioned above for record purposes.

GEO. H. BARKER,
Hon. Excursion Secretary.

TIME TABLE

| | | |
|---------------------|--------------------|--------------------|
| March | Saturday afternoon | Camp Mt. |
| April | Easter | Running Creek |
| May | Week-end | Tamborine Mt. |
| June | Week-end | Caloundra |
| July | Saturday afternoon | Mt. Gravatt Cave |
| August | Saturday afternoon | Sunnybank |
| September | Week-end | Pt. Lookout |
| October | Saturday afternoon | Sandgate |
| November | Saturday afternoon | Sherwood Arboretum |
| December | Week | Tamborine Mt. |

DESERTS

(Presidential Address by S. T. Blake, M.Sc.,
16th February, 1942)

The choice of the subject for this address was influenced partly perhaps by the prominence of deserts in the daily news, but very largely because the subject of deserts has given me much food for thought since I visited the very arid parts of Queensland in 1936. What is a desert? I have consulted various dictionaries, encyclopaedias, and standard works on geography, botany, zoology, and geology without meeting with a really satisfactory definition, however freely certain features of the desert may be discussed. An accurate definition may be impracticable, and in many cases the term seems only to have a relative significance, but when we call a place a desert, we usually understand it to be a very barren, very arid piece of country, usually with very little vegetation, quite incapable of supporting large herds of cattle or flocks of sheep, and incapable of producing crops. The aridity may be due to very low rainfall—less than 1 inch per year in some places—usually accompanied by high day-temperatures and high evaporation, or the aridity may be physiological because the ground is frozen so that the

water is unavailable to the plant.

The desert is a region of extremes. High day-temperatures may alternate with low night-temperatures, long practically rainless periods may be succeeded by short periods of heavy rain, while strong winds may be of common occurrence. A feature of some deserts and nearby regions is the periodic occurrence of dust-storms and sand-storms. These should be carefully distinguished. In dust-storms only the finest particles of earth are carried by the wind, often to considerable heights, and to great distances. Sand-grains are very much heavier and cannot be lifted to any great height and are carried forward in a peculiar bouncing motion. The entire mass of the moving sand, which may be quite dense, is said to exceed but rarely 6 or 8 feet in height, and may be considerably lower.

As might be expected, plants and animals living in deserts have many peculiarities, which enable them to exist under such difficult conditions. Plants are usually widely scattered since there is not sufficient moisture to support numerous plants for very long. In most perennial plants of the desert the roots are very long in proportion to the size of the plant. Some penetrate the soil to great depths where moisture may remain for a long time or where it may have seeped a long way from higher and perhaps better-watered land. Other roots may extend for enormous distances away from the plant so that they are enabled to absorb moisture from over a large area. The roots, particularly tap-roots, are often thickened and fleshy, and help to store up water.

Many desert plants lie flat on the ground, while many others form hemispherical or semi-ellipsoid masses, the so-called "mat" and "cushion" plants. Annual plants may assume these shapes, but the most striking are special kinds of shrubs. The main stems of these plants are short, but they produce a very large number of branches and branchlets all pressed very closely together, and bearing tiny leaves (often covered with woolly hairs) only at the ends. Cushion plants often consist almost entirely of a great mass of wood with a thin covering of leaves on the outside. In New Zealand, on some of the high mountains, some of these cushion plants grow to a large size and are known as "vegetable

sheep'' because from a short distance they look for all the world like resting sheep. Other cushion plants look like rocks, while some Tasmanian ones are prickly.

The shape of these plants help to prevent loss of water by transpiration, owing to the reduced transpiring area. Other species economise water by producing leaves which are very small and often hard or spine-like. In yet others a covering or partial covering of woolly hairs help to prevent the loss of water and sometimes even help the plant to absorb dew. A kind of resin coats some plants so that these feel quite sticky to the touch.

One very common type of desert plant is the succulent type, many of which have been brought into cultivation, such as the various species of *Agave*, *Aloe*, and *Cactaceae*. The *Cactaceae* (or *Cacti*, as they are popularly called) are found in the deserts of Mexico and the neighbouring regions of the United States, and often grow to a great size. They have no ordinary leaves, these being represented only by sharp spines such as are seen on the prickly pear. The usual work of the leaves is carried on by the stems which are always fleshy and swollen, usually jointed, and quite varied in shape, some being long and cylindrical, others are almost globular so that the plants look like huge spiny pin cushions, others again are flattened from side to side as is the prickly pear, while in addition many are fluted from top to bottom. These *Cacti*, as do other succulents, store up large quantities of water in their stems, and are sometimes cut by thirsty travellers to obtain this water. In some of the African deserts, plants similar in appearance to *Cacti* are found, but they are not at all related to them, being species of *Euphorbia* and therefore allied to such plants as Poinsettia, asthma weed, etc. They do not have showy flowers as have many of the members of the *Cactaceae*.

In some succulents, it is the leaves rather than the stem which become swollen and which become the water-reservoirs. The common pig-weed is an example of such a succulent, as well as being a reminder of the fact that many of the peculiar types of plants I have mentioned are not restricted to desert areas. The Parakeelya, common in the Australian deserts, belongs to this type, and has become famous because stock feeding on it are able to do without water. It has very showy *Portulaca*-like flowers

which close in mid-afternoon and open again next morning.

An inhabitant of the Kalahari Desert of South-west Africa is the very curious *Welwitschia*, or *Tumboa*, as it has frequently been called. This unique plant has a stout stem nearly buried in the soil, shaped like a huge turnip partly split in two, with two long, flat, leathery leaves trailing over the ground. The plant is known to live for at least a century, and during all that time the two leaves never die, but continue to grow from the base as the ends are worn away.

Some plants make provision for the long, dry periods in another way. As the amount of moisture in the soil becomes very small the leaves drop off, the small branches die away, and sometimes even all the parts which are above ground die away, leaving only the base of the plant and the roots to remain alive until more favourable conditions return. In some cases it has been found that even some of the roots drop off also. Other plants escape the driest conditions altogether by growing only after rain, rapidly producing their flowers and seeds, and then dying away entirely, leaving their seeds behind to carry on when the next rain falls.

After rain, the desert frequently becomes a garden with a great wealth of brilliantly coloured flowers interspersed with grasses and other plants, many of which, such as Sturt's desert pea, *Portulaca*, Iceland poppy, saxifrage and gentian, are now well known in gardens.

Of desert animals I dare say little, but it is certainly worthwhile to mention a few. The camel is well known to everybody, at least in name and repute. Its peculiar cushion-like feet, and its capacity for travelling long distances between drinks are adaptations for desert life. Some animals store up water in a manner somewhat analogous to succulent plants, and perhaps the most striking of these is a frog from the Australian deserts. This animal absorbs water through its skin and can swell to an enormous size, becoming almost globular. Then, burrowing down to some depth it can exist on its stored water during unfavourable times. The aborigines know of this, and seek it as an emergency water supply. There is also a species of ant known to the aborigines which stores up a sweet fluid in its distended abdomen and is used by them

as both food and drink.

Many desert animals adopt the burrowing habit (as for instance, the frog just mentioned, and several Australian marsupials) and so escape from the extreme heat and aridity of the surface of the desert. One Australian creature, the marsupial mole, leads so entirely a subterranean existence that it has lost the use of its eyes.

So far we have been speaking of deserts in general terms, but it is now necessary to distinguish between different types of deserts. At the beginning of this address it was pointed out that aridity may be due to heat and physical drought, or it may be due to the more or less permanent frozen state of the soil. The former are often referred to as "Hot Deserts" and the latter as "Cold Deserts." Hot deserts occur in all continents near the Tropics of Capricorn and Cancer, usually inland, but extending to the coast in some places, as in North-west Australia along the 90-mile Beach, South-west Africa, and Chile. There are three very distinct types of Hot Desert, though more than one may occupy the same region. These distinctions are based on the nature of the surface of the ground, which may be composed of sand, rock or rock-fragments, salts, or other substances. In the first of these, the Sandy Deserts, the ground-surface is composed of long parallel sandhills or "dunes" as they are often called, alternating usually with narrow, hard flat expanses called "claypans." The claypans may be almost perfectly smooth, or some stone fragments may occur. In its characteristic development in the Arunta or Simpson Desert of South Australia, Northern Territory, and Far South-west Queensland, the dunes follow the direction of the prevailing wind (approximately N.N.W. in Queensland), are on the average 40-50 feet high though more rarely up to 60 feet, and may run unbroken for 20 miles or more. The crests are from one-quarter to one-sixth of a mile apart. In Western Australia the dunes may be as much as 100 feet high, but most of the reports of dunes as high or higher are rough calculations of travellers who have based their estimations on the difficulty experienced in crossing them—a natural error readily pardoned by anyone who has had to traverse these dunes. In some parts of the world the dunes lie transversely to the prevailing wind. Occasionally the land surface may be nearly level or with

only gentle undulations. Sand is a substance which is easily shifted by wind, and as winds are frequent, there is the possibility of huge unstable areas. Under these circumstances, few plants can establish themselves. Once a plant has established itself, however, some degree of stabilisation of the sand is effected, and other plants appear, until a more or less definite though very open plant-cover appears. The crests of the dunes are never vegetated though the sides may be. In the Arunta Desert one of the most characteristic plants of the lower slopes of the dunes is the "Sandhill Canegrass" (*Zygochloa paradoxa*). This is a densely shrubby grass about 3-4 feet high with long creeping underground stems as well, and is a most effective sand-binder. On the lower slopes also, a profusion of brilliantly coloured flowers appear after rain—white, yellow, lilac, pink. Very large areas of sand-desert occur in Western Australia.

In the second type, Stony Deserts, the surface is composed of a layer of boulders of various sizes (I have seen them as large as a man's head) or occasionally of sheet rock. These deserts seem, on the whole, to be more sterile than sand-deserts, though in Australia they grade imperceptibly into better country. In Australia they are frequently called "gibber plains." Sturt's Stony Desert on both sides of the Queensland-South Australia border belongs to this type. The rock fragments or "gibbers" overlie an orange-coloured soil, and sometimes may not completely cover the soil. Shrubs and small usually crooked trees occur here occasionally, particularly on slopes, commonly species of *Acacia* and *Eremophila*. The most interesting are the fairly widely spread *Eremophila Latrobei* with showy crimson flowers, and the rare "waddy-wood" (*Acacia Peuce*), with the heaviest but one of all known timbers. Smaller plants are mostly grasses and members of the salt-bush family, many of them annuals.

In some parts of the Australian stony deserts, but more particularly in the sandy deserts, the so-called "spinifex" is prominent. The name, which has nothing to do with the botanical *Spinifex*, is applied to the numerous species of *Triodia* and *Plectrachne*. These are two genera of grasses of peculiar appearance. They form large more or less hemispherical masses up to 9 feet in diameter and up to 4 feet high, with stout spinelike leaves

radiating in every direction, and often gummy. They are sometimes called "porcupine grass," a much better name.

The remaining hot deserts are the "Salt Deserts," so called because the soil is highly impregnated with salts, or there may be a layer of salts on the surface. Very few plants can withstand the poisonous reaction of such a high concentration of salts, and the vegetation of such deserts is both scanty and lacking in variety. Commercial use of the salt-deposits, however, has been made in some places, such as Chile. Salt deserts are but poorly known in Australia, but at least small areas occur in the neighbourhood of Lake Eyre and elsewhere.

For the purposes of this address, I shall not attempt to give a systematic division of the Cold Deserts, but variety occurs. The Tundra is probably the best known area of Cold Desert, occupying a large part of Northern Europe, Northern Asia, and Northern Canada and Alaska. Growth takes place after the thaw, and apart from the numerous showy flowers, there are peculiar tiny creeping woody plants which further south are represented by closely similar plants growing into trees. Dwarf species of willows are among these. Still nearer the poles, the chief vegetation is composed of lichens and mosses, particularly the "reindeer moss" (really a lichen, *Cladonia rangiferina*), upon which the reindeer feeds. The animals of these regions naturally differ greatly from those of the Hot Deserts, and are mostly fur-bearing creatures. In extreme cases, such as on Antarctica generally, and in parts of Iceland and Greenland, vegetation is almost absent, and animals are few and far between.

Other Cold Deserts occur on high mountains, the Alpine and Mountain deserts. The Alpine deserts approach the tundra and arctic deserts in characteristics, though some mountain deserts are more like the stony deserts. Alpine deserts are common in New Zealand, with their "mountain sheep" and other plants, but in Australia are restricted to parts of Tasmania, and the high mountains of North-east Victoria and South-east New South Wales.

Deserts are not homogeneous in their aridity. Every here and there there occur oases, where water is relatively abundant, and where the vegetation may be quite rich.

Sometimes these oases are fairly large, and towns or villages may be established there. Often they are quite small, restricted perhaps to a small spring or rock-hole or soak. On maps of Australia these are sometimes marked as "native well." The rock-holes are usually deep holes weathered out of rock and act as small reservoirs of rain water. Soaks are seepages where the water does not flow so freely as in a spring. One very interesting type of soak to be met with in Queensland is dry during the day, but begins to seep after dark, increasing until about mid-night, and then drying out again before dawn.

Desert conditions may be extremely modified if large rivers run through the area, of which the Nile Valley is a well known example. Near the Queensland-South Australian Border, the Desert is traversed by Cooper's Creek, and the Diamantina and Mulligan Rivers. The rainfall in these regions is very low and very uncertain, the yearly average varying from about 4 inches to about 8 inches, though often there may be very much less than this for several years in succession. For a large part of the year these rivers do not run, but every now and then they are flooded from the higher rainfall areas near their sources, overflow their banks for up to 30 miles, covering the surrounding plain with silt and thoroughly saturating the soil. After the flood recedes, a very rich vegetation springs up and provides excellent fodder for many months.

In the Tundra, the oases are on the higher ground, as this is the portion most free of ice and snow.

In parts of Queensland, the term "desert" is applied to a very different type of country. This is a kind of Eucalyptus forest or mixed open forest, on sandy or rocky soil, with very little readily available water at the surface.

In spite of the difficulties of existence, many deserts have been inhabited by man for very long periods. At times habitation may be restricted to oases, or man may lead a nomadic existence, wandering from oasis to oasis or from rock-hole to rock-hole, driving his stock with him if he possessed any, or living by hunting, etc., if he did not. Human population under such conditions could not be very dense. With irrigation, many desert areas have become rich agricultural areas. The discovery of gold has inspired the construction of water schemes, such as at Coolgardie and Kalgoorlie, whereby water has been

brought enormous distances and so transformed the face of the land. In the artesian basin, artesian water has made grazing profitable on a large scale, but the artesian water is unsuitable for irrigation, and in some places is too deep for practical use.

But settlement in or near desert areas has its dangers, and unless great care is taken, there is a very strong tendency for soil when disturbed, to "drift." The surface soil is blown about and may be removed entirely to some other area which is then buried. This is what is meant by "the encroachment of the desert." Trampling by stock, particularly in very dry times, may initiate this "drift," but agricultural practice is very dangerous. Fortunately, this encroachment of the desert is of minor concern in Queensland, but in parts of New South Wales and South Australia, and in other countries, the problem is a very serious one.

A RARE LYCOPOD FROM THE LAMINGTON NATIONAL PARK, S.E. QUEENSLAND

(By C. T. White, Government Botanist, Brisbane)

Some months ago I was handed a specimen of Tassel Fern from the Lamington National Park collected by Miss M. O'Reilly, who stated it was rare there. I also received another specimen from the National Park collected by Mr. S. T. Blake. Mr. Blake found his plant (Blake No. 14121) near the Coomera Falls on vertical rock-faces associated with filmy ferns and mosses in Scrub Box (*Tristania conferta*) forest on steep hillsides at an altitude of 2,400 feet. On examination these proved to be *Lycopodium varium* R. Br., a species with a very wide distribution throughout New Zealand, the Pacific Islands and Australia. It is a lover of cool highlands, and in Australia is most frequent in the mountain areas of Victoria and Tasmania. In the "Queensland Flora" (p. 1923) F. M. Bailey records it for the "Queensland Tropics." Previous to these specimens from the National Park, the only Queensland specimen in the Queensland State Herbarium was one from near the top of Bellenden Ker (Palm Camp—Meston's Bellenden Ker Expedition, 1889). In the National Herbarium, Melbourne, I have also recently



Lycopodium varium R.Br. A rare Lycopod (nat. size).

Photo Dept. Agriculture & Stock, Brisbane.

seen specimens of this lycopod collected in North Queensland by J. Dallachy in July, 1870. The locality and habitat are given as "Telegraph line growing on trees." Dallachy made his headquarters at Rockingham Bay (Cardwell), and radiated out on collecting tours from this centre.

The genus *Lycopodium* is divided into a number of subgenera; the present plant belongs to the subgenus, *Urostachys*, the members of which are characterised by regular dichotomous branching and the stems rooting at the base only. This group is treated by some botanists as a distinct genus. It is divided into three sections. Our plant belongs to the section "Phlegmaria," the members of which are epiphytes of pendent habit, popularly known as "Tassel Ferns."

BOOK REVIEW

"Strange New World," by Alex H. Chisholm, F.R.Z.S., Sydney and London, Messrs. Angus & Robertson Ltd., pp. 382, with plates and maps. Price, 8/6.

The present work, the latest and most important issued by Mr. Chisholm, is one that can be read by anybody, whether they are interested in Australiana or not with the interest that a tale of adventure in a new land always invokes. To the naturalist and lover of history, whether deep student or not, the book has an absorbing interest, and surely the author never once dreamed of the gold mine he was going to find in England in 1938 when he was searching for particulars of Gould, Mrs. Gould, and Gould's assistant, Gilbert. The last, little known in modern times, was in the late 1830's and early 40's, one of the best known figures in Australia.

In reading the early chapters one can feel the joy, enthusiasm and astonishment of this modern Australian birdman when he suddenly discovered Gilbert's diary of the Leichhardt expedition, in a quiet Hampshire village.

All thanks are due to the "London Times" for printing Chisholm's appeal for relics of John Gould, but how narrowly it missed finding a response! The attention of Mrs. Helen Edelstein (Gould's grand-daughter) who

answered the request for information about Gould, was drawn to Chisholm's letter in "The Times" by a relative in Ireland.

The first part of "Strange New World" deals with Gilbert's wanderings and finding in Tasmania, West Australia, and what is now the Northern Territory. The major part of the book is based on Gilbert's diary, kept when he was a member of the Leichhardt expedition from the 1st October, 1844, till his death from spearing in the Gulf Country on the 28th June, 1845. This diary meticulously kept in spite of all hardships, probably throws more light on the true character of Leichhardt than any other source previously found—even taking into consideration the fact that Gilbert was a subordinate—and reading through the lines, was probably of a rather exacting nature, perhaps even a bit quarrelsome. Leichhardt in spite of his idiosyncrasies and his many faults, as an explorer and a leader must have been a very dominating personality. He certainly monopolises most of the scene in the present book. Chisholm stresses Leichhardt's knowledge of Geology and Botany, but the circumstances under which the party travelled, always behind schedule, and always trying to make both ends meet, did not give much encouragement to the study of natural history and especially to the collecting of specimens. In fact, in this respect the expedition was a great disappointment. It is strange that Leichhardt should have received such a reputation as a botanist and should have had so many plants named after him. His results were infinitesimal compared with those of Mitchell and some other Australian explorers.

His specimens that are available at the present time are meagre and scattered through various Australian and European Herbaria, and for the most part they represent rather commonplace plants of no particular outstanding merit.

"Strange New World" is one of the outstanding books published in Australia, and will probably run through many editions.

C.T.W.

NOTE ON PTEROSTYLIS DAINTREYANA AND PTEROSTYLIS PARVIFLORA IN QUEENSLAND

By the Rev. H. M. R. Rupp (Northbridge, N.S.W.)

In May, 1937, Dr. C. P. Ledward, of Burleigh Heads, forwarded specimens of a *Pterostylis* discovered by him at an altitude of 2,000 feet on the McPherson Range. These proved to be identical in all respects with Mueller's *P. Daintreyana*, which up to that time had been generally considered endemic to the Hawkesbury Sandstone areas of N.S.W. Recently, however, my attention was called by Mr. M. A. Lower, of Myrtle Bank, S.A., to a record by the late F. M. Bailey in the "Queensland Agricultural Journal" for October, 1910, in which he noted that *P. Daintreyana* had been found by Mr. T. F. Hall at Ipswich. By the courtesy of Mr. C. T. White, Government Botanist, I have been able to examine Mr. Hall's Ipswich specimens, which are in the Brisbane Herbarium. The flowers were evidently well past maturity when collected; but nevertheless I had little difficulty in concluding that the specimens were not *P. Daintreyana*, but Robert Brown's *P. parviflora*. The basal rosette of leaves was quite definitely that of the latter species; and the withered sepals showed no sign of the long filaments so characteristic of *P. Daintreyana*, which are easily distinguished even in withered specimens. We must therefore recognise that a mistake was made, and that Dr. Ledward's discovery remains the first (and up to the present the only) authentic record of *P. Daintreyana* in Queensland. Mr. White states, however, that the Ipswich specimens retain considerable value as constituting the first definite record of *P. parviflora* itself in this State.

STATEMENT OF RECEIPTS AND EXPENDITURE FOR THE YEAR ENDED 31st DECEMBER, 1941

Receipts

| | £ | s. | d. |
|---|----|----|----|
| Balance Forward from 1940 | 15 | 8 | 6 |
| Subscriptions | 57 | 5 | 0 |
| Nature Lovers' Certificates | 0 | 12 | 2 |
| Sale of "Queensland Naturalist" | 3 | 11 | 6 |

| | | | |
|--|-----------------------|----|---|
| Sale of Flowers, September Meeting | 0 | 5 | 0 |
| Hire of Tent | 1 | 0 | 0 |
| Surplus from Camps | 20 | 0 | 2 |
| Surplus from Supper, November Meeting .. | 0 | 13 | 3 |
| Interest at Savings Bank | 0 | 15 | 4 |
| | <hr/> £99 10 11 <hr/> | | |

£40 War Savings Certificates held by George Street Branch of Commonwealth Bank. Receipt for same held by Hon. Secretary, Miss E. E. Baird.

| | £ | s. | d. | £ | s. | d. |
|--|-------|----|----|-----------------------|----|----|
| Expenditure | | | | | | |
| Rent: Women's Club | | | | 12 | 5 | 0 |
| Insurance: Bookcase, Library, Tent, Poles, Etc. | | | | 0 | 5 | 0 |
| Telephone | 6 | 0 | 1 | | | |
| Less Refund | 1 | 1 | 3 | | | |
| | <hr/> | | | 4 | 18 | 10 |
| Petty Cash | | | | 13 | 0 | 0 |
| Magazine Subs. | 2 | 3 | 0 | | | |
| Order Presented to Hon. Secretary | 3 | 3 | 0 | | | |
| | <hr/> | | | 5 | 6 | 0 |
| Printing Subs. Notices | 0 | 16 | 6 | | | |
| Printing "Naturalist" and Wrappers | 14 | 14 | 6 | | | |
| | <hr/> | | | 15 | 11 | 0 |
| Honorarium to Lanternist | | | | 0 | 10 | 0 |
| Balance in Bank | | | | 47 | 15 | 1 |
| | <hr/> | | | <hr/> £99 10 11 <hr/> | | |

| | £ | s. | d. |
|--------------------------------|----|----|----|
| War Savings Certificates | 40 | 0 | 0 |
| Bank Balance | 47 | 15 | 1 |

Total £87 15 1 includes:—

| | | | |
|-------------------------------|-----|----|----|
| Nature Lovers' League A/c. .. | £39 | 12 | 0 |
| Tent A/c. | £26 | 6 | 10 |

E. N. MARKS, Hon. Treasurer.
C. W. HOLLAND, Hon. Auditor.

THE QUEENSLAND NATURALIST

JOURNAL OF THE QUEENSLAND NATURALISTS' CLUB
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PROCEEDINGS.

EVENING MEETING, 16th March, 1942.—The President, Dr. E. O. Marks, occupied the chair and about 36 members were present. Mrs. J. H. Simmonds, Snr., and Miss O. Lennard were elected members of the Club. Reports on the excursion to White's Hill were given by Miss Holland and Mr. Barker (birds) and by Mr. Blake (botany). The Excursion Secretary, Mr. Barker, announced that owing to various circumstances resulting from the international situation, the Easter Camp could not be held.

Mr. S. L. Everist gave an address, illustrated by lantern slides, on "Plant Communities in Western Queensland," particularly describing the country around Blackall, where three main types of country were distinguished—Gidgee Scrub, Open Downs and "Desert."

EVENING MEETING, 30th April, 1942.—The Chair was taken by the Senior Vice-President, Mr. C. T. White, and about fifty-eight members and friends were present. Mr. I. R. Munro was elected a member of the Club. The excursion from Camp Mountain to Ferny Grove was reported upon by Mr. Blake. Mr. White, Mr. Blake and the Hon. Secretary were appointed delegates to a meeting convened by the horticultural societies for the purpose of staging a combined flower show in August.

Natural history sound films were shown by Mr. Payne of the Department of Public Instruction. These featured the lyre bird and the koala (Australian) animals of rocky and sandy seashores (English), the King Penguins at Edinburgh Zoo and the Bird Sanctuary on the Farne Islands.

EVENING MEETING, 18th May, 1942.—The President, Dr. E. O. Marks, occupied the Chair and about fifty members and friends were present. Mr. Blake reported that the meeting convened by the Horticultural Societies had decided that a Combined Flower Show would be impracticable. Reports on the excursion to Gold Creek were given by Dr. Marks (geology), Mr. Blake (botany) and Mr. Barker (birds).

Mrs. Macfarlane addressed the meeting on a tour through the Mandated Territory of New Guinea, discussing its history and showing a series of lantern slides.

A nest of either the rufous shrike thrush or of the scissors grinder, some seeds of the native wistaria and a scrap book dealing with early meetings of the Club were tabled.

EVENING MEETING, 15th June, 1942.—The Chair was occupied by the President, Dr. E. O. Marks, and about thirty members were present. Reports on the excursion to Woodridge were given by Dr. Marks (geology), Mr. Blake (botany) and Mr. Barker (birds).

Mr. E. T. Holdaway addressed the meeting on "Direction from the Sun and Stars."

A stone axe found on the excursion was tabled by Mr. J. E. Young, books were tabled by Mr. Barker and Mr. Smith and stones from Camoowcal by Mrs. Lydement.

EVENING MEETING, 20th July, 1942.—The chair was occupied by the President, Dr. E. O. Marks, and about thirty members and friends were present. The excursion from Ashgrove to Bardon was reported upon by Dr. Marks (geology), Mr. White (botany) and Mr. Barker (birds).

The address was given by Mr. J. L. Schofield, on Malaya. The area is densely populated by a mixed population, but the Chinese are the most progressive. Tin and rubber are the main industries.

A book showing coloured illustrations of South African flowers was tabled by the President.

EVENING MEETING, 17th August, 1942.—The Chair was occupied by the President, Dr. E. O. Marks

and about thirty members and friends were present. The excursion from Petrie to Lawnton was reported upon by Dr. Marks (geology), Mr. White (botany) and Mr. Barker (birds).

Mr. S. T. Blake gave an illustrated address on "Glimpses of North Queensland," stressing the enormous variation in country and vegetation in this tropical area.

Specimens from the excursion were tabled by Mr. White; an account from "The Live Wire" of the nesting of the Royal Albatross in New Zealand was also tabled.

EVENING MEETING, 21st September, 1942.—The President, Dr. E. O. Marks, occupied the Chair, and about forty-five members were present. Mrs. Blades was elected to membership of the Club. Reports on the excursion to Camp Mountain were given by Dr. Marks (geology), Mr. Blake (botany), Mr. Barker (birds) and Mr. Young (ethnology).

The evening was devoted to exhibits prepared and discussed by a number of members. These dealt with several branches of natural history and the industrial use of several plants.

EVENING MEETING, 19th October, 1942.—The President, Dr. E. O. Marks, occupied the Chair and about thirty-five members and friends were present. Reports on the excursion to Mount Coot-tha were given by Mr. Young (general) and Miss Holland (birds).

The evening was devoted to a series of lecturettes on birds. Miss M. Holland gave an intimate account of the birds near her home; Sgt. E. Williams described a method of simplifying the identification of birds by diagrams; Mr. Barker showed pictures of terns and other sea birds.

EVENING MEETING, 16th November, 1942.—The President, Dr. E. O. Marks, occupied the Chair and about fifty members and friends were present. Reports on the excursion to Wellington Point were given by Dr. Marks (geology), Mr. White (botany), and Mr. Barker (birds).

Mr. H. A. Longman gave the address on "Brains." The average Caucasian brain weighs about three pounds, that of the male being about five ounces heavier than that of the female. Mere size does not always indicate

the best brain. At birth it is about one-fifth its ultimate size, and it is thought that it is improved by education.

A light supper was served at the conclusion of the meeting, the final one for the year.

THE TREE-FERNS OF QUEENSLAND.

By D. A. Goy, Botanic Museum and Herbarium,
Brisbane.

Tree-ferns contribute so largely to the beauty of our rain forests (scrubs or jungles) both in Northern and Southern Queensland, that an account of the different kinds accompanied by simple keys for their identification, should be of interest. In preparing such keys and descriptions the use of some technical terms is unavoidable. The following few notes are therefore offered to assist in the interpretation of the key characters.

While ordinary flowering plants reproduce by means of seeds, ferns produce millions of tiny spores for this purpose. The minute powdery spores are enclosed in elaborately constructed cases or sporangia. These spore cases are clustered together in small masses of various shapes and in different positions on the frond, usually on the under surface. Each individual cluster is called a sorus. Sori are often, though not always, protected by some sort of covering. Sometimes protection is afforded simply by the margin or part of the margin of the frond bending back over the sorus. Again, there are many kinds of coverings distinct from the ordinary substance of the frond, some of which are persistent on the sorus after maturity, others shrivelling and falling off at an early stage. The coverings or indusia open in various ways when the spores are mature. All these facts—the shape of the sorus, its position, the nature of the indusium, if any, and the method of attachment and opening of the indusium—come into consideration in the classification of ferns.

One of the characteristics of the majority of ferns which gives these plants their delicate lacy beauty, is the compound nature of the fronds. That is, the frond usually

has a distinct main axis along each side of which are arranged numbers of smaller components, called primary pinnae. The primary pinnae may in their turn be similarly divided, their divisions being termed secondary pinnae. Very often the secondary pinnae are also pinnate, bearing tertiary pinnae, and so on. The divisions of the pinnae are termed pinnules. The fronds are described as simply pinnate, bipinnate, tripinnate, etc., according to the degree of division.

The tree-ferns dealt with below fall into four main groups or genera, which may be distinguished as follows:—

Sori forming a regular row on each side of the

lobes, naked or covered by an indusium.

Sori round:

Indusium lacking or insignificant Cyathea

Indusium thick, 2-lipped, the outer lip
composed of a lobe of the frond Dicksonia

Sori oblong, uncovered, forming a band near
the margin of the pinnules Angiopteris

Sori (spore masses) irregular, naked, covering
the lower part of the under surface of the
pinnules Todea

CYATHEA (ALSOPHILA)

Key to the Species.

Pinnae not hairy except on main axes:

Secondary pinnae incised almost to the
midrib. Lateral veins pinnate,
mostly once forked:

Stalk of frond pale, rather fleshy, more
or less prickly, especially towards
the base:

Bases of frond-stalks covered with
soft fine scales and hairs:

Trunk with persistent bases of
frond-stalks attached 1. australis

Trunk covered with large oval
scars from fallen fronds 2. Brownii

Bases of frond-stalks clothed with
dark brown narrow bristly scales
(Northern species) 3. Woollsiana

Stalk and axes of frond dark, hard and
very prickly 4. Leichhardtiana

Secondary pinnae entire or incised less
than half-way to the midrib. Lateral
veins branched several times at the
base (Northern species):

| | |
|--|----------------|
| Lower pinnae of fronds normal | 5. Rebeccae |
| Lower pinnae changed into fibrous growths which crown the trunk wig-like | 6. Baileyana |
| Pinnae covered with short pale hairs. Sec- ondary pinnae pinnate, the ultimate segments finely lobed (Northern species) | 7. Robertsiana |

1. *C. australis*, Rough Tree-fern. Fig. 1.

A very common tree-fern in all the southern rain forests, rarer in the north. This species seems to prefer hillsides in rain forests, but frequently grows along creeks in cleared rain forest, and scattered plants of it may persist in open paddocks where rain-forest previously grew. It is easily recognised by its trunk being covered with the persistent prickly stalk-bases of fallen fronds. Trunk appearing stout on account of the attached frond-bases, up to 30ft. high. Fronds 4-10ft. long, usually bipinnate; main axis and stalk of frond rough and becoming very prickly towards the base, which is densely clothed with long, soft, brownish scales. Primary pinnae about 2ft. long and 6-9 inches wide, pinnatifid almost to the midrib into numerous falcate segments; (a few basal segments are sometimes free and shortly stalked). Margins indistinctly toothed. Spore-masses in one row on each side of the segments, midway between the midrib and margin.

2. *C. Brownii* (*A. excelsa*) Common or Tall Tree-fern. Figs. 3 and 6.

This species is much more common in North Queensland than *C. australis*, and is frequently found bordering creeks, both in the north and south. It has a tall slender trunk up to 30ft. high, marked with large oval scars left by the old fronds. A few of the uppermost old stalks remain attached to the trunk, often with remnants of the fronds still on them, and these come away readily when pulled. The fronds themselves are superficially almost indistinguishable from those of *C. australis*, but the scales at the base of frond stalks are pale, not brown.

3. *C. Woollsiana*.

A rather rare species confined so far as known to the coastal ranges of north-east Queensland. Trunk slender, tuberculate. The fronds resemble in general appearance

those of *C. australis*. Stipes clothed at base with very distinctive dark brown, narrow, rigid scales or bristles. Axes of fronds smooth, pale underneath but densely covered with short brown hairs above. Texture of frond thinly papery, green above, paler on under surface. Sori small.

Recorded from Rockingham Bay, Cardwell Range, between Cairns and Herberton, and Mt. Spurgeon.

4. *C. Leichhardtiana*, Prickly Tree-fern.

A common species in Southern Queensland, but very rare in the far north. It is easily recognised by its dark slender trunk up to 20ft. high and thin, hard, dark, prickly stalks and axes. Fronds large, primary pinnae 2ft. or more long and eight inches wide; secondary pinnae similar to those of *C. australis* and *C. excelsa*, but the segments are narrower and more distinctly toothed, and the lower ones are more frequently free and shortly stalked. The fronds are a darker green than those of *C. australis* and *C. Brownii*.

This is the commonest species in our southern rain-forests. It is found on mountain slopes and on creek banks, but seems to grow much taller in the higher situations.

5. *C. Rebeckae*, Rebecca's Tree-fern.

Trunk slender, up to 12ft. high and about 2-4 inches in diameter. The stalk-bases of old fronds are persistent on the trunk. Crown very loose, consisting of about eight tiers of the State both in lowland and highland localities. Fronds. Stalks and axes dark, slender, rather rough, covered on the upper side with long narrow scales. Fronds dark green, 3-8ft. long and up to 3½ft. broad, bipinnate; pinnae up to 2ft. long and about 5 inches broad; secondary pinnae 2-3 inches long, 3/8 inch broad, shortly stalked, broad at the base tapering upwards, the midrib scurfy underneath; margins from almost entire to bluntly toothed or incised less than half-way to the midrib. Sori (spore-masses) large, globular, in two irregular rows on each side between the midrib and margin.

6. *C. Baileyana*, Wig Tree-fern. Fig. 2.

A very rare species so far recorded only from Mts. Spurgeon and Bellenden-Ker and from near Ravenshoe in

the far north. It is distinguished from *C. Rebecca* mainly by the lower pinnac of the fronds being changed into a rigid, fibrous growth. These growths on the bases of the stalks, which are somewhat appressed to the trunk, have the appearance of a wig, hence the local name.

7. *C. Robertsiana*, Slender Tree-fern.

A northern species that apparently prefers mountain rain-forest such as on Bellenden-Ker, Mt. Spurgeon, Rockingham Bay, etc. This is a small dainty tree-fern with a very slender trunk 10-12 feet high. Fronds more delicate than in any of the foregoing species, not forming a regular crown, but rather distant along the stem, tripinnate, of thin texture, pale green in colour and sprinkled with short soft hairs on both surfaces; primary pinnae $1\frac{1}{4}$ -2 feet long, 4-8 inches wide; secondary pinnae 2-4 inches long and $\frac{1}{2}$ -1 inch wide, the axis narrowly winged; tertiary pinnae $\frac{1}{4}$ - $\frac{1}{2}$ inch long and about $\frac{1}{8}$ inch wide, finely divided into tiny toothed lobes. Sori or spore-masses one to each lobe, forming a row on each side of the tertiary pinnae, with fine spreading hairs radiating beneath them.

DICKSONIA.

Key to the Species.

| | |
|---------------------------------|---------------|
| Indusium 1mm. in diameter | D. antarctica |
| Indusium 2mm. in diameter | D. Youngiae |

D. antarctica, Woolly Tree-fern or Soft Tree-fern.

Figs. 4 and 5.

This is a common tree-fern in South-eastern Queensland. It has not been found north of the Bunya Mountains, but extends to New South Wales and Victoria. The trunk is stout and covered with coarse matted rootlets. Specimens seen in this State are not very large, the trunks being only about 10-15 feet high and the crown having a diameter of 10-12 feet, though in the south it is said to attain 50 feet in height.

In the more open scrub or in rain-forest clearings this species frequently forms dense groves in gullies and along creek banks. The trunks are often thicker at the top than near the ground, and in the denser rain-forest have a

peculiar tendency to sprawl along the ground for a great deal of their length before rising. There may be two or three heads, but a single crown is usual. This is rather dense, with the fronds more upright than usual, their tips drooping gracefully. The fronds are 4-10 feet long on smooth, softly hairy stalks. The lower part of the stalks, as well as the whole axis of young fronds, is thickly clothed with long soft dark red hairs. The fronds themselves are three times pinnate, the pinnæ 7-16 inches long and $2-3\frac{1}{2}$ inches wide; the secondary pinnæ are 2-3 inches long and $\frac{3}{4}$ inch wide; the ultimate or tertiary pinnules are about $\frac{1}{2}$ inch long, sometimes less, and are divided into several small lobes, each of which may bear a sorus. These sori are placed on the margins of the segments enclosed in a two-lipped receptacle, the outer lip consisting of a recurved lobe of the frond, the inner one comprising the indusium proper.

D. Youngiae.

This species is apparently rare in Queensland and its known distribution is scattered. It has been found on Mounts Spurgeon and Bellenden-Ker, between Cairns and Herberton, on Fraser Island and at Robert's Plateau (Macpherson Range) which forms part of the southern border, and extends into New South Wales. No doubt it will later be found in other out-of-the-way localities intermediate between those quoted.

The fronds are very similar to those of the preceding species, differing mainly in the much larger indusium. It forms only a short trunk 10-12 feet high and is said to be found of wet situations near creeks.

ANGIOPTERIS.

A. evecta. Fig. 7.

This is not a tree-fern in the usual sense, having only a short thick trunk (sometimes more than one) and no regular crown as for instance in most species of *Cyathea*. The fronds and stalks are extremely large and fleshy, of a dark green colour and very spreading habit, one plant occupying a considerable area. It inhabits rain-forest and has been found as far south as the Blackall Range, in gullies, and on Fraser Island. It occurs in the Carnarvon Ranges, but is most abundant in the far northern rain-

forests in such localities as the Daintree River, Russell River, Rockingham Bay and the Bellenden-Ker Range.

The trunk attains 2-3 feet in height and $1\frac{1}{2}$ feet or more in diameter. The fronds are on long, thick, fleshy stalks with swollen bases, each one arising from between two dark brown leathery scales 3-4 in. long. Fronds 2-4 times pinnate, very large and spreading, up to about 24 ft. long and eight feet or more broad, the main axis branching after about six feet. Pinnae 3-5 feet long and about one foot wide. Leaflets 4-8 inches long and $\frac{2}{3}$ to one inch wide, smooth and rather fleshy, very shortly stalked on a fleshy flattened axis; the margins of the leaflets are usually minutely toothed and the apex is acuminate or even drawn out into a tail up to an inch long. The sorus is oblong, consisting of 4-7 pairs of very small spore cases placed along the lateral veins, not covered by an indusium; the sori collectively form a narrow dark band around the leaflet near the margin.

TODEA.

T. barbara, King Fern.

This species is also sometimes called Swamp Tree Fern, a name not particularly appropriate since the plant is not confined to swamps. It is quite at home on steep mountain slopes in rain forest or "scrub" as well as on the swampy "wallum" typical of the islands of Moreton Bay. It is widely spread over the whole eastern coast.

The King Fern sometimes develops a trunk several feet high, but frequently the trunk is so short as to be unnoticeable. The fronds are large, 2-8 feet long, twice pinnate, dark glossy green on the upper surface, paler underneath, thick and rather coarse. The primary pinnae are a foot or less long and two inches wide, and are divided into numerous secondary leaflets about $1-1\frac{1}{2}$ inches long and $\frac{2}{5}$ inch wide. The margins of the leaflets are finely toothed. The spore cases are tiny, but extremely numerous, more or less irregularly scattered over the lower part of the under surface of the secondary leaflets, and eventually thickly covering almost the whole surface. These brown or bright brick-coloured masses of spore cases greatly add to the beauty of the fern and serve to distinguish it readily from all other tree-ferns.



Fig. 1.—*Cyathea australis*, Rough Tree Fern, Lamington National Park. Note bases of frond stalks remaining attached to trunk. Photo: S. T. Blake.



Fig. 2.—*Cyathea Bailevana*, Wig Tree Fern near Ravenshoe, North Queensland. Note fibrous "wig" formation at bases of fronds. Photo: S. T. Blake.



Fig. 3.—Scene in tropical jungle, Fairyland, near Kuranda, North Queensland, showing a group of *Cyathea Brownii* the Common or Tall Tree Fern. Note the clean scar-marked trunk, c.f. *Cyathea australis*. The large-leaved plant in foreground is the Native Banana (*Musa Hillii*).

Photo: Dept. of Agric. and Stock.



Fig. 4.—Dense stand of **Dicksonia antarctica**, the Woolly or Soft Tree Fern, on creek bank, Spring Creek Plateau, S.E. Q'ld.

Photo: S. T. Blake.



Fig. 5.—**Dicksonia antarctica**, the Woolly or Soft Tree Fern, Lamington National Park, showing characteristic decumbent base of trunk which Mr. C. T. White (Government Botanist) finds a useful seat.

Photo: R. L. Higgins.



Fig. 6—*Cyathea Brownii*: A close-up view of trunk taken in the Botanic Garden, Brisbane, showing the large oval scars with traces of leaf tissue adhering.

Photo: Dept. of Agric. and Stock.



Fig. 7—*Angiopteris evecta*, growing on extreme edge of Woongoolba Creek, Fraser Island. Note the short, thick trunk with long, fleshy stalks of four large fronds emerging. Fronds about 24 ft. long. Dr. D. A. Herbert (Queensland University) provides means of size comparison.

Photo: S. T. Blake.

NOTES ON THE LIFE HISTORIES OF SOME
LYCAENID BUTTERFLIES—PART II.
(WITH NOTES ON SOME SKIPPERS.)

By Miss M. Smales and Dr. C. P. Ledward,
Burleigh Heads.

Hypochrysops protogenes miskini, Waterhouse, 1903.

Since our previous notes (in "The Queensland Naturalist," February, 1942) we have further facts to add to the life history of this species. Full-grown larva somewhat like that of *H. delicia*, but smaller and flatter, pinkish-brown in colour, dorsal band lighter, with darker segments at each extremity. Pupa similar in shape to that of *H. ignita*, light yellowish-brown, speckled with darker brown. The few pupae and pupal shells so far found have been in various situations, such as hollow twigs, dead leaves and a hollow in the trunk of a tree. Tiny larvae taken in November were easily reared in captivity; they pupated in January and emerged before the end of the month. Pupal duration, 21 days in October, 15 days in January.

To summarise, we have five species of *Hypochrysops* on the South Coast, each associated with a different species of ant, viz. :—

H. delicia.—*Crematogaster fusca*.

H. appelles.—*C. laeviceps*.

H. ignita.—*Iridomyrmex nitidus*.

H. epicurus.—*I. itinerans*.

H. protogenes.—*I. gilberti*.

Candalides margarita, Semper, 1878.

The larvae of this species feed on the young shoots and flower-buds of several species of mistletoe. At Burleigh they are most common on *Loranthus vitellinus*, but have been found also on *L. dictyophlebus*, *L. congener*, *L. alyxifolius* and *Phrygilanthus celastroides*. In shape they are distinctive, having a prominent dorsal ridge which is higher in front, giving them a "humped" appearance; they are quite smooth, usually green, but pinkish-brown if on flower-buds; often without any markings, sometimes with variable brown marks along the back. Only once have we seen ants with these larvae; on this occasion there were several larvae on a clump of *L. alyxifolius* and each

was attended by two or three small black ants (*Technomyrmex sophiae*). We have found most larvae in April, but they are to be had in every month of the year. Pupa similar in shape to that of *absimilis*, but dark red-brown in colour, shiny and without markings. Pupal duration from three weeks in summer to five weeks in winter. Unlike *absimilis*, which sometimes has a pupal duration of several months, *margarita* is on the wing throughout the year; it is a more robust species and is more vigorous in flight.

Candalides absimilis, Felder, 1862.

The life history of this species is well-known, the larvae being found on many different food plants. In the Burleigh District they are most common on the young shoots of trees of the family *Sapindaceae* during the months of October, November and December; they appear to be uncommon earlier and later than this. The pupal duration is variable; in early summer it is often only 15 to 22 days, but larvae pupating in December may emerge in anything from 15 days to nine months; those that have not emerged by April will usually not do so till the following August or September.

Candalides consimilis, Waterhouse, 1942.

In "Records of the Australian Museum," Vol. XXI., No. 2, July, 1942, Dr. Waterhouse describes two new species of *Candalides*, *consimilis* and *persimilis*, both closely similar to *absimilis*. Specimens bred at Burleigh correspond well with his description of *consimilis*.

For many years he suspected that more than one species was included in *absimilis*, and early in 1941 we were able to prove, beyond doubt, the existence of an unnamed species. In December, 1940, we collected various kinds of Lycaenid larvae feeding on the flowers of a small rain-forest tree, *Alectryon coriaceus*. The larvae were mostly those of *Nacaduba berenice*, *N. felderi* and *N. lineata* with a few of *Theclinesthes scintillata* and *Candalides absimilis*. But amongst them were five of a very striking appearance, quite new to us; they appeared to be covered with spines. These "spines" consisted of a dorsal row of vertical tubercles and on each side a row of horizontal tubercles, with additional paired tubercles at each

extremity. The colour scheme was also unusual, being a blend of various shades of green, brown, cream and white. These larvae pupated from December 12th to December 25th. Pupae similar in shape to those of *absimilis*, but dull yellow-brown in colour and without markings. Butterflies emerged during 1941 as follows:—February 4th, one female; March 28th, one male; September 2nd, one female; September 30th, one female; the fifth failed to emerge. This species differs from *absimilis* in the following points: In both sexes both fore and hind wings are squarer and less rounded; the male is a duller blue, with darker scales in the centre of the forewing extending outwards along the veins, and there are two black dots near tornus of hind-wing; in the female the blue at the base of the fore-wing is brighter and more conspicuous and the white area slightly larger, and the white area of the hind-wing is suffused with pale blue; underside of both sexes similar to *absimilis*.

Candalides xanthopilos, Hubner, 1906.

This is another species with a very variable pupal duration. From a batch of larvae that pupated in May, 1941, single butterflies emerged as follows: September 9th, October 8th, November 15th, November 24th, November 26th (two), January 10th, January 28th, January 29th and May 6th, 1942—the last having a pupal duration of nearly twelve months.

Candalides hyacinthina, Semper, 1878.

At Burleigh the usual food-plant is the commonest and largest species of *Cassytha*, *C. pubescens*. The larvae are distinguished by the two small red-brown tubercles, one towards each extremity. The pupal duration varies from three weeks in spring to two weeks in summer and five weeks in May and June.

Candalides erinus, Fabricius, 1775.

We have found larvae only on *Cassytha filiformis*, a species plentiful near the beaches. The larvae are similar to those of *hyacinthina* in shape, but are smaller and lack the dorsal tubercles; colour and markings are variable,

usually some shade of green, with a yellow dorsal band bordered by interrupted brown lines: dorsal band often whitish bordered by white lines. Pupa similar in shape to that of *hyacinthina*, light grey or pinkish brown with darker markings. Pupal duration similar to that of *hyacinthina*.

Candalides acasta, Cox, 1873.

We have found larvae only on *Cassytha glabella*, a very fine low-growing species. Larvae have been found close to the ground, resting on leaves of *Lomandra* and *Patersonia* which were parasited by the *Cassytha*. Larvae green, with yellow-green dorsal band bordered by yellow lines. Pupa smaller than that of *erinus*, narrower and with little of the abdominal flattening usual in pupae of this genus, light grey-brown without markings.

Pseudodipsas cephenes, Hewitson (additional note,
October, 1942.)

As indicated in our previous notes (February, 1942) the ant associated with this species is *Iridomyrmex gilberti*, the same as that attending the larvae of *Hypochrysops miskini*. We have recently found larvae of *cephenes* and *miskini* together in the same shelters and feeding on the same food-plant, *Smilax australis*. Previously we had found *cephenes* on *Maba fasciculosa* only.

Nacaduba palmyra tasmanica, Miskin.

The larvae feed on the flower-buds of a mistletoe, *Loranthus vitellinus*. We have found them on this one species only, and only from April to July, during the main flowering period. They are smoother than most other larvae of this genus and are reddish-brown, the same colour as the flower-buds. Pupal duration averages three weeks.

Nacaduba perusia parma, Waterhouse and Lyell.

The food-plant is *Rapanea variabilis*, which occurs as a shrub or small tree on the edge of rain-forest. Larvae usually eat the surface only of the leaf and are most often found on the underside. They are either green or reddish-brown and similar in shape to those of *berenice*. They pupate in leaves on the ground. Pupal duration two to three weeks.

Theclinesthes scintillata, Lucas.

In summer we have collected larvae of this species from the flowers of *Alectryon coriaceus* and in winter from the flowers of *Cupaniopsis anacardioides*. In each instance they have been associated with the larvae of *Nacaduba berenice*, *N. lineata* and *N. felderi*. The larvae are similar to those of *N. felderi*, but the pupae are broader anteriorly and slightly hairy. Pupal duration from eight days in summer to 22 in winter.

Euchrysops cnejus cnidus, Waterhouse and Lyell.

At Burleigh the larvae feed inside the pods of two species of "cow-peas," *Vigna vexillata* and *V. luteola*, which are found trailing over rocks and low bushes. The pods are long and narrow, and the full-grown larva, which is similar to that of *boeticus*, has to elongate and compress itself considerably in order to accommodate itself within. The larvae are attractive to ants, and we have noted several different species in attendance; the most usual is the handsome "Golden Wood Ant," *Polyrachis ammon*; others noted are species of *Camponotus*, *Iridomyrmex* and *Crematogaster*. Larvae seem most plentiful in February and March. Pupal duration (March), nine to twelve days.

(It is interesting to note that *boeticus* and *phaseli*, both of which occur in the same locality as the above and breed on leguminous plants also, have preferences for quite different species, *boeticus* preferring *Crotalaria* spp. and *phaseli* preferring *Canavalia obtusifolia*.)

Zizeeria (Chilades) trochilus putli, Kollar.

We have found larvae of this tiny species on the flowers of "Hairy Indigo," *Indigofera hirsuta*, a leguminous herb with very small pink flowers. The larvae were attended by small *Iridomyrmex* ants. Pupal duration (July and August) five weeks.

Telicota anisodesma, Lower, 1911.

The food-plant of this "skipper" is *Flagellaria indica*, a tall climber of rain-forest areas; it is locally known as "Climbing Bamboo," but is distinct from the true climbing bamboo of the North. Eggs are laid singly on the grass-like leaves. The larvae live in shelters at the tips of the leaves, rolling the tips into cylinders with the opening facing the main stem. They leave the plant to pupate, pupating in dried leaves on the ground. Full-grown larva

pale yellowish-green, head light brown with dark brown inverted V. Pupa similar to that of *ancilla*, but larger. Pupal duration in October and November averages 22 days. Larvae are difficult to rear in captivity. Pupae may be obtained by enclosing larvae on the food-plant in mosquito net, dried leaves being provided for them to pupate in.

Hesperilla donnysa icaria, Waterhouse, 1941.

The food-plant of this race at Burleigh is *Gahnia erythrocarpa* R. Br., growing in swampy areas. Larvae appear to be more common on those clumps growing well out in the open, away from all shelter and shade.

Hesperilla picta, Leach.

The food-plant at Burleigh is *Gahnia Clarkei* Benl. This also grows in swampy areas. The larvae appear to be more common on those clumps growing in shady and sheltered spots. (*Tisiphone abeona morrissi* also prefers this species of *Gahnia*.)

Hesperilla ornata, Leach.

The food-plant at Burleigh is *Gahnia aspera* Spreng., growing in or near patches of rain-forest.

Hesperilla idothea, Miskin.

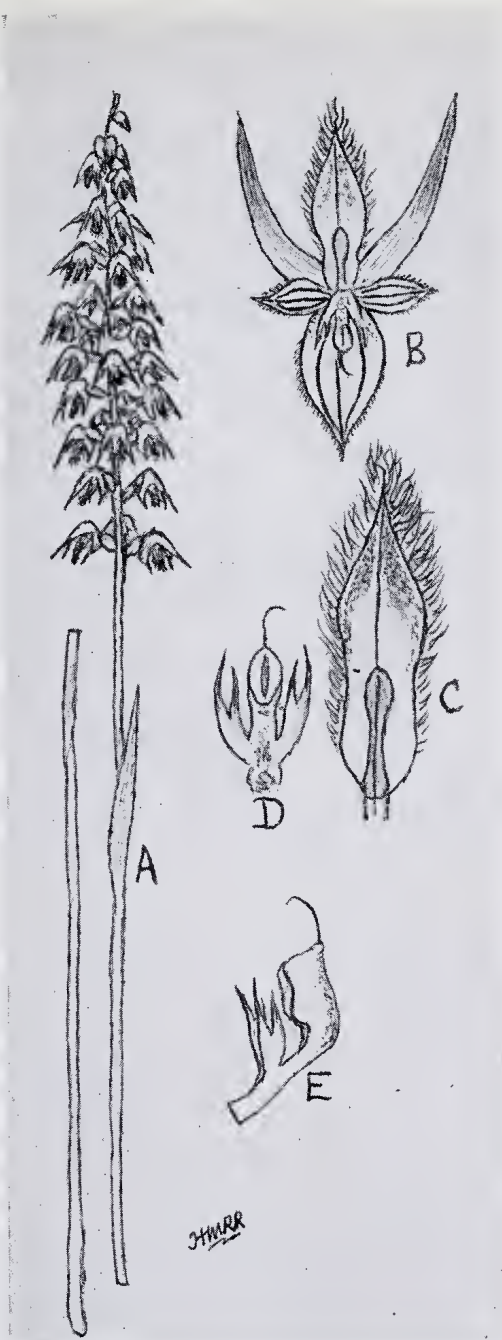
This species occurs on Springbrook at over 2,000 feet. The food-plant is a very tall, coarse *Gahnia* (*G. tetragonocarpa* Boeck).

A NEW TERRESTRIAL ORCHID FOR SOUTH QUEENSLAND.

Prasophyllum parvicallum, sp. nov.

By the Rev. H. M. R. Rupp, Worthbridge, N.S.W.

Planta gracilis, circiter 30 cm. alta; caulis bractea sub spicam 2-3 cm. Spica multiflorens, 4-6 cm. longa. Flores virides cum maculis venisque fusco-purpureis. Sepalum dorsale late lanceolatum, circiter 4 mm. longum, 3-venosum, marginibus breviter ciliatis. Sepala lateralia late linearia, 5-6 mm. longa, divergentia. Petala sepalo dorsali similia, sed multo minora. Labellum lanceolatum, acuminatum, recurvum, fere 5 mm. longum; callus minimus, vix ad medium extendens; margines ciliis longis dense vestiti. Columna gracilis; appendices inaequaliter bilobati; lobi



Prasophyllum parvicallum Rupp, sp. nov.

KEY TO PLATE

- A. Flowering plant, about natural size.
- B. Flower opened out.
- C. Labellum from above.
- D. Column, showing anther and appendages, from the side.
- E. Column from the side.



acuminati, *glabri*. Anthera ovata cum filamento curvo. Stigma obscurum.

A slender plant about 30 cm. high; stem-braet 2-3 cm. below the inflorescence. Spike up to 6 cm. long, with about 20-26 flowers, greenish with purple-brown markings and veins. Dorsal sepal broad-lanceolate, about 4 mm. long with three veins and shortly-ciliate margins. Lateral sepals quite free, divergent, broadly linear, 5-6 mm. long. Petals similar to the dorsal sepal, but very much smaller, 3-veined and with shortly-ciliate margins. Labellum lanceolate-acuminate, recurved, longer than the dorsal sepal or at least not shorter; callus small, club-shaped, barely reaching the middle; margins of labellum rather densely fringed with long cilia. Column slender for the genus; appendages unequally bifid, the lobes both acuminate and *quite glabrous*. Anther ovate, with a long and slightly curved filiform point. Rostellum and stigma obscure.

Kalbar, South Queensland, "growing on a broad and almost barren rocky ledge on top of Mt. Greville, among thick clumps of grass, about 2000 feet above sea level." E. J. Smith, October, 1942.

Three specimens, in excellent condition, were sent to me by Mr. Smith, but unfortunately, at the time, I was seriously ill in hospital and they were pressed. One spike was subsequently softened out and examined and later on Mr. N. A. Wakefield, of Victoria, serving in the A.I.F., and temporarily stationed at Liverpool, near Sydney, made an almost perfect dissection of the dried flower. The only parts remaining obscure were the rostellum and stigma. The new species is quite distinct from any hitherto described. The petals are unusually small relatively to other segments. The callus of the labellum is very small (thus providing the specific name); it is shaped like an Indian club, the thicker portion foremost. The column-appendages perhaps provide the most remarkable feature of the flower, for they are perfectly glabrous, and this is, I think, unique among the numerous species of the section *Genoplesium* (to which this plant belongs) *when other parts of the flower are ciliated*. In this case the labellum is almost as conspicuously ciliate as that of *P. fimbriatum* R. Br. It is not easy to suggest the nearest affinities of *P. parvicallum*; in general appearance it somewhat resembles *P. Nublingii* Rogers; but the details differ considerably.

ON TWO INTERESTING SPECIES OF *MARSDENIA* (FAMILY ASCLEPIADACEAE).

By C. T. White, Government Botanist, Brisbane.

Marsdenia araujacea F. Muell. Fragm. Phytogr. Austr. VI. 135 (1868); Benth. Fl. Austr. IV., 339 (1869); Bailey Queensl. Fl. III., 1009 (1900). *Vincetoxicum pachylepis* F. M. Bailey, Bot. Bull. VIII. (Dept. Agric. Brisbane), 79 (1893); Queensl. Fl. III., 1000 (1900).

North Kennedy District: Stone River, near Rockingham Bay, *J. Dallachy*, Oct. 1866 (Type: herb. Melbourne). Cook District: Kamerunga, Barron River (near Cairns), *E. Cowley*, Jan. 1893.

When working at the Royal Botanic Gardens, Kew (England) in the latter part of 1939 I found that the type sheet of *Vincetoxicum pachylepis* F. M. Bail. was almost an exact match for a sheet in the Kew Herbarium which represented part of the type gathering of *Marsdenia araujacea* F. Muell. It is a striking plant and it seems strange it should only have been gathered on the two occasions cited above.

Marsdenia glandulifera sp. nov.

Frutex alte scandens, ramulis glabris cortice subsuberoso longitudinaliter ruguloso obsitis. Folia glabra petiolata, elliptica, basi leviter cordata, apice apiculata, supra ad basin glandulis 7-10 ornata; nervi praecipui ca. 9 in utroque latere; petioli 2.5-4 cm. longi; laminae 10-12 cm. longae, 4.5-6 cm. latae. Flores pro genere magni in umbellas simplices axillares, pedunculis 0.5-1 cm. longis, pedicellis validis 2 mm. longis dispositi; sepala glabra, late ovata, 5 mm. longa; corolla fere rotata profunde in lobos 5, 1.2 cm. longos, lanceolatos e basi latiore apicem versus sensim angustatos divisa; coronae pars adnata segmentis subaequilonga, segmenta erecta apice in acumen obtusiusculum plus vel minus abrupte angustata, antheris longiora; stigma rostratum, corona multo longius. Folliculi 11 cm. longi, 5 cm. lati.

A tall climber; branchlets glabrous, clothed with a rather corky and longitudinally wrinkled bark. Leaves

glabrous, petiolate, elliptic, slightly cordate at the base, apex apiculate, on the upper surface bearing 7-10 glands at the base; principal nerves about nine on either side of the midrib; petiole 2.5-4 cm. long, blade 10-12 cm. long, 4.5-6 cm. broad. Flowers rather large for the genus, arranged in simple axillary umbels; peduncles 0.5 cm. long; pedicels stout, 2 mm. long; sepals glabrous, broadly ovate, 5 mm. long; corolla almost rotate, deeply cut into five lobes, lobes 1.2 cm. long, gradually narrowed towards the apex from a broad base; adnate part of the corona about as long as the segments; segments erect, more or less abruptly narrowed towards the top into a rather blunt point, longer than the anthers; stigma rostrate, much longer than the corona.

Wide Bay District: Fraser Island, *F. C. Epps* (type: flowers), *W. R. Petrie* (leaves only). North Kennedy District: Dunk Island, *E. J. Banfield* (fruits), Jan., 1906 (a comparatively slender vine, not more than $\frac{1}{4}$ inch diam. at the thickest point, yet climbing up fairly tall trees).

The present plant in general appearance is very similar to *M. araujacea* F. Muell. but the two species can be distinguished as follows:—

Branches and foliage sprinkled with hairs, leaves cordate at the base, in the dried state the basal lobes overlapping and concealing the glands; sepals pubescent *M. araujacea*

Branches and foliage glabrous, leaves slightly cordate at the base, in the dried state basal lobes not overlapping, basal glands prominent; sepals glabrous *M. glandulifera*

Mr. S. T. Blake, who is making a special study of the Australian and Papuan Asclepiadaceae, has pointed out that the new species here proposed approaches in some respects the genus *Thozetia*, especially in the tendency of the rachis of the umbels to become elongated as the flowers develop. It is also marked as in *Thozetia* by prominent disk-like scars from where the flowers have fallen. This elongation of the rachis is scarcely perceptible in *M. araujacea* F. Muell.

OBITUARY.

It is with the deepest regret that we record the death of Lieut. G. K. Jackson, A.I.F., killed in action in New Guinea on 12th Januray, 1943. Lieut. Jackson was one of the most active and popular members of the Club; he was especially interested in ethnology and has contributed several articles to "The Naturalist." To his wife and parents we extend our deepest sympathy.

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ANNUAL MEETING, 15th February, 1943.—The Chair was occupied by the President, Dr. E. O. Marks, and about 34 members were present. The Annual Report, read by the Honorary Secretary, showed that the greater part of the Club's activities had been maintained; there had been a fair attendance at meetings and membership had not decreased. The Honorary Excursion Secretary reported that, in spite of adverse conditions, ten field excursions—mostly on Saturday afternoons—had been held. The Financial Statement showed a credit balance of £102/13/2, including War Savings Certificates to the value of £40. Office-bearers were elected as set out on the inner page of the front cover of this issue. In the absence of the incoming President, Miss Clarke took the chair. The retiring President, Dr. E. O. Marks, then delivered his Presidential Address on "An Excursion into Local Geological History." Some nodules of limonite were tabled by Miss Williamson.

EVENING MEETING, 15th March, 1943.—The President, Mr. C. T. White, occupied the chair and about 45 members were present. Dr., Mrs. and Miss B. Savage, Mr. Dal', and Lieut. Ed. Williams were elected to membership. Reports on the excursion from Salisbury to Sunnybank were given by Miss Holland and Mr. Barker (birds), and by Mr. Blake and Mr. White (botany). Mrs. E. H. Jones gave a short talk on seaweeds and this was followed by a descriptive talk on Eucalypts by the President, which was illustrated by a number of slides prepared by Mr. Sanderson from photographs taken by the latter. A specimen of flexible sandstone (Itacolumite) from Northern India was tabled by Miss Holland; Mr. Barker exhibited a book on entomology; while some photographs and some fruits of *Gyrocarpus* were exhibited by Mr. Blake.

EVENING MEETING, 3rd May, 1943.—The President, Mr. C. T. White, occupied the chair, and about 23 members were present. Mr. C. Schindler and Master Robert Adams were elected to membership. Reports on the Easter Camp, held through the kindness of Dr. and Mrs. Marks at Camp Mountain, were given by Dr. Marks (geology), Mr. Blake and Mr. White (botany) and Miss Baird (birds). Miss Carrick tabled specimens of mosses, including *Sphagnum*; Miss Marks exhibited specimens of mosquitoes; Mr. Blake exhibited a flowering branch of the blue quandong, *Elaeocarpus grandis*, and a germinating seed of a mistletoe; Mr. White exhibited peculiar felt-like masses of fungal hyphae taken from trees, some bracket fungi, and a fungus of stone-like appearance.

EVENING MEETING, 17th May, 1943.—The President, Mr. C. T. White, occupied the chair and about 100 members and friends were present. Reports on the excursion to Salisbury were deferred. Mr. J. T. Robinson showed coloured moving pictures taken in Taronga Park Zoo and in the Gulf country of North Queensland.

EVENING MEETING, 21st June, 1943.—The President, Mr. White, occupied the chair, and about 40 members and friends were present. Reports on the excursions to Salisbury and to Pine Mountain were given by Dr. Marks (Geology) and by Mr. Blake and Mr. White (Botany); Mr. White tabled specimens of a few species, notably *Cupaniopsis Shirleyana* and *Stephania aculeata*. Dr. A. Wade gave a lecture on "Oil and the World War", pointing out that oil is important as a source of synthetic rubber and plastics, as well as fuel. A film was screened showing the first crude methods of obtaining oil.

ANNUAL REPORT FOR YEAR ENDING JANUARY, 1943.

Ladies and Gentlemen,

The Council of the Queensland Naturalists' Club presents the thirty-seventh annual report of the Club's activities.

MEETINGS.—There have been ten evening meetings, ten field excursions and ten Council meetings during the year. Attendance at Council Meetings has been as follows:—Dr. Marks, 10; Mr. White, 8; Miss Clarke, 9; Miss

Baird, 10; Miss Marks, 10; Mrs. Jackson, 4; Mr. Barker, 9; Mr. Sanderson, 7; Mr. Blake, 8; Dr. Herbert, 1; Mr. Jackson, 8; Mr. Wright, 6.

The attendance at evening meetings has been good; the average being 40. Interesting and instructive lectures and papers dealing with the various branches of Natural History have been given during the year. Many were illustrated by specimens and lantern slides. The lecturers include Messrs. S. T. Blake, S. L. Everist, Mrs. Macfarlane, Messrs. E. T. Holdaway, J. L. Schofield, Miss Holland, Sgt. Ed. Williams, Mr. Barker and Mr. Longman.

At the evening meeting in April, Mr. Payne, an officer of the Department of Public Instruction, screened films showing various studies of animal and bird life. The September evening meeting was devoted to exhibits; many interesting specimens were tabled by members; Messrs. White, Blake, Wright, Rick and Dr. Herbert made instructive comments on their exhibits.

Reports of the monthly field excursions were given at the evening meetings; specimens collected being tabled by members and commented on; many other interesting exhibits were also shown.

MEMBERSHIP.—It is with great regret that the death of three members is recorded: Mr. Salkeld passed suddenly after a few days illness, Mrs. Williams had been ill for some months; Ken Jackson was killed in action in New Guinea on January 12th.

Four new members have been elected during the year and five resignations received. There are now 143 members of the Club; 6 honorary members, 20 country members, and 117 town members.

Several members on full time national duty are unable to attend meetings and are greatly missed.

The Library continues to function, and is a great source of pleasure and information for members.

"NATURE LOVER'S LEAGUE".—Several members have signed the pledge at the Museum.

"QUEENSLAND NATURALIST".—Two numbers of the Club journal have been published. The Editor welcomes suitable contributions from members.

GENERAL.—When considered necessary, action has been taken by the Club concerning reported infringements

of the Animal and Birds Protection Acts and the Native Plants Protection Acts.

E. O. MARKS, President.

E. E. BAIRD, Hon. Secretary.

QUEENSLAND NATURALISTS' CLUB

REPORT OF EXCURSION SECRETARY FOR 1942.

Despite all difficulties consequent on the War and its disruptions, the Club has organised and carried through a varied and useful programme of outings for the benefit of its members. The chief obstacle that the Committee faced in arranging their programme has been lack of transport. Owing to the growth of the City and its extra expansion under War conditions, many and most of the nearby hunting grounds of the Club in the past years have disappeared, and the present lack of transport has placed other possible areas quite out of bounds. Then again, when it is possible to overcome the transport problem, it is found that the usual accommodation at a number of desirable places has closed for the duration.

However, despite these drawbacks, those members who have been able to attend the outings arranged, have found ample enjoyment and benefit from those that were possible.

Perhaps the most outstanding one was that to Camp Mountain, when as the guests of our President and Mrs. and Miss Marks, members were hospitably housed for the week-end at the new barracks on the property and rambled round the adjoining countryside at their leisure. Although comparatively close to the city and accessible by a short train journey, it is certainly in the country, and the list of over 50 species of Birds noted for the two days is ample evidence of its richness from the Naturalist's point of view and those of us present on that occasion are pleased to remember our hosts' invitation to come again. This outing was our nearest approach to a Camp-out this year, the usual Easter outing being out of the question at present.

Other delightful and instructive afternoon rambles were made to such places as could be reached by existing services, the most ambitious of these being to Gold Creek,

where we spent a whole day. The bus took us to Brookfield from which point we rambled along the Gold Creek road for some miles to a pleasure spot on a branch of the creek at the foot of the hills. Here we lunched and from there rambled up to an old mine and other points of interest, and but for the crush in the bus, the day was most pleasing. Four "point to point" rambles of more than ordinary interest were those from the Camp Mountain to Ferny Grove, at which fourteen members were present; Petrie to Strathpine via Lawnton, where Mr. White rediscovered a rare dwarf acacia, and Miss Holland recorded a pair of yellow-tailed finches feeding a young bronze cuckoo.

The third was from Woodridge to Kuraby, part of which was negotiated in the rain and was finished by some of our lady members by a quick sprint for the early train. The fourth led from Ashgrove tram terminus to Bardon, this outing and the first-named being unusually healthy rambles by reason of the mountain climbing provided on both occasions.

Of the others, the one to White's Hill provided a remarkable demonstration of the power of lightning which had shattered a big tree situated well within a sheltered valley right at the foot of the hill. At Wellington Point a whole day Sunday outing was made possible by the kind invitation of Mrs. and Miss Dabbs, who placed their lovely home and grounds at our disposal and so loaded us with morning tea and refreshments that we had to delay lunch considerably to be equal to that as well. Here we renewed our acquaintance with a number of seashore and water birds not usually within our range and were provided with the unusual spectacle of two pairs of tree swallows nesting in the roof of our host's house, using the sparrow's method of slipping between the iron and the wall-plate through the grooves in the metal. A ramble in the Dams area of One Tree Hill in September was the ninth item on our programme and though it fell in a dry period provided much that was of interest at that time.

In February, a visit of inspection led by Dr. Herbert, and guided by Mr. Bick, was made to the new university site and the whole place was explored, and the different planting systems noted. When things become normal again after the war, the result of those planned operations should be a joy forever.

REPORT OF HONORARY LIBRARIAN FOR YEAR 1942.

Although wartime conditions have caused some diminution in attendances, approximately 161 magazines and 26 books have been lent to members during the year.

One book was purchased and several interesting and instructive volumes were presented by Mr. C. T. White and Mr. G. H. Barker. Mr. J. Nebe also continues to donate monthly copies of the National Geographic Magazine. The thanks of the Club is extended to these gentlemen for these very welcome additions to the Library.

It is interesting to note that the National Geographic Magazine is by far the most popular with members, 68 copies having been lent at the ten meetings. "Natural History" (American Museum of Natural History) is next with 34; "Walkabout," 30; "Geographic Magazine," (English), 22; and "Wild Life," 7.

Owing to the move necessitated when the Brisbane Women's Club changed its address and the fact that the new premises, being smaller, could not accommodate our second cupboard, same is temporarily being taken care of by the Librarian at her home.

E. M. (Mrs. G. L.) JACKSON,
Librarian.

A CHAT ABOUT BIRDS

By Margaret G. Holland (a lecturette delivered on
Bird Night, 19th October, 1942.)

To-night I wish to talk about a few of the things that go on in our neighbourhood—in the bird world, I mean. It is possible that a much longer and more exciting address could be given featuring other things that go on in our neighbourhood, but I have borne in mind that this is a naturalists' club and will confine my remarks to ornithological doings only.

You will most of you know the type of country very well. Last Saturday's excursion took us through quite a lot of it—open forest—equally attractive to birds and humans. In Toowong we are fortunate in having variety

and besides this open forest land my domain includes a swamp and several cleared paddocks. The swamp can be seen from the railway line, just as you cross that black bridge parallel with Moggill Road. Yes, I know it's only a small one, but you've no idea what interesting things go on there. Thus not only do we get our forest birds, but also swamp birds. One of our star turns is the stone curlew, which I am told is getting rather rare round Brisbane. It is just the finishing touch to one of our clear, moonlit, winter nights to hear the weird, wild calling of the curlews. One spring morning about 8 o'clock, I came upon a mother curlew, father, and three half-grown offspring. They all shot up straight and looked absurdly stripey. Father spread out his wings to their fullest extent, and just stood there and said "Gurrrrr." I smiled politely and went. Curlews are quite large! Down by our miniature swamp the herons stand, ever on the lookout for a meal. There are a few rather inadequate tufts of grass, and among these I sat me down and watched. The white-faced and the white-necked were there, and although the latter is the larger bird, their methods of feeding are identical. The intense concentration of their gaze amazed me—one almost felt that the object of such a regard would shrivel up. As far as I can gather they leave it to the last moment to snatch their prey—there is no hurry, no bustle—just that steady gaze and then, presto, down it goes! I think that of the two the white-necked is the shyer when he sees me, the white-faced looks, looks again, stretches his neck and stands so straight and still that I know he imagines he looks like a fence post. At the last moment, rather peeved that his little deception has not gone over, he gives an outraged croak, and sails away, not without a certain dignity. This particular day quite a steady breeze was blowing from the south-east. Now it may have been my imagination, but I could have sworn that each time the wind blew a little stronger, the white-faced heron's neck wobbled. A peculiar movement not unlike a snake. There were other things to watch besides the herons. Further down the paddock a young plover and its parents were also engaged in the important business of lunching. Baby plover is an attractive little soul, and though small, was quite clearly marked, and seemed very independent.

Fences play a large part in a suburban bird's life. Willie Wagtail loves them and so does Jacky Winter. The white-faced heron and spur-winged plover share the same paddocks, but I have yet to see a plover on a post. I wonder why? One would feel so much more important on a post—perhaps plovers are less worldly-minded. As a matter of fact, I've rather given them up. From June to August, when courting and domestic duties are in full swing, I'm scared of them. That sharp excited call and fierce swoop (it seems fierce to me) are as yet too alarming to be faced. After the war I'll fish up a tin hat and go forth to conquer. I hear them at night, and try to picture them as loving fathers and good husbands—but I can't—I'm scared of them. The fact that they lay their eggs on the ground in a very makeshift nest doesn't really matter. No one would dare to touch them, anyway. This year, too, we had quite an invasion of straw-necked ibis—I counted as many as 30 in the paddock, which is a lot for us—there were also considerable numbers of them out Long Pocket way. Going up to Warwick by service car in June, I noticed lots of these birds disporting themselves in the spray from the pipes irrigating the paddocks. For ibis, they were quite frisky. And if we are down in the paddock, there will be two songs sure to be heard from the mangroves that line the small and dirty creek. These are the voices of the Mangrove Warbler and the Brown Honeyeater. May or June is the best month to hear the brown honeyeaters. They are slim and brown, and not very large, but the air is full of their joyous bubbling notes. They love singing and will perch hidden among the leaves for about 10 minutes sometimes, singing lustily; of course, they are in love, and that makes a difference. By the end of June the dainty nest is finished and the next important step begun. I remember what fun it was finding it, and how father bird perched himself some distance away, on the topmost twig of a mangrove, and sang furiously to distract me, while mother bird tried to feed the children and yet not disclose the nest. They had concealed it well, too, and it was some time before I spied the little cradle underneath an umbrella of leaves. You will notice how very soft the lining is—nothing but the best for the brown honeyeaters.

The other call is also a very pretty one. A. H. Chisholm in his book, "Bird Wonders of Australia," describes it rather aptly: "Clear, fresh, joyous and seemingly quite careless, it suggested nothing so much as a small boy on holiday expressing his feelings towards the world at large. And yet there was in this melody, as intuition rather than judgment suggested, some quality more airy, more birdlike, than even the merriest boy could achieve."

The owner of such a voice is plump and grey. Slipping in and out the mangrove leaves she (I always think of it as she) is rather difficult to see; and although she doesn't sing continuously, when she does, you just have to stop and listen.

In the big gums in the paddock you can always hear the starlings. I think, myself, that the starling is rather a vulgar type. Sometimes a few will come up for a bath in the garden, but very rarely. The pale-headed rosella looks in on us quite a lot, while following the flowers, its soft mellow whistle completely belying the fact that it IS a parrot. The scaly-breasted lorikeets wing their noisy way across our skies, too, but they are always so high up and move so fast, that somehow, in spite of their beauty, I don't have the same amount of feeling for them as for the little souls who peep at you from behind tree trunks and through the grass. The little yellow-tailed tit spends spring and summer with us and is a great favourite of mine. I also have a soft spot for our silver-eye who is also quite a good little mimic. Only the other morning it made a very good attempt at the Grey Thrush's call and imitated that of the cage canary perfectly—I suppose someone nearby had one and, liking its song, the silver-eye had added it to its own repertoire. We have a very nice little creek—the dirty one higher up—which runs through a pretty patch of bushland. A creek is a great asset, because when the sun is on the water, birds of all descriptions come for a dip. They all have their ways and bathe differently. The silver-eyes like to sit in the pools made by the rocks—3, 4 or 5 of them—all flipping about in the most adorable fashion. But the honey-eaters—honeyeaters mean to me the brown of water slipping over rocks, glints of sun and the flash of wings. Scarlet, white-naped, brown, and yellow-faced—they

come in troops, and chase each other among the bushes along the edge, and in and out of the creek, until you'd think they'd be well-nigh exhausted. Then there are great preenings of ruffled feathers until, the morning bath being over, they fly off with squeaks of joy for some fresh game among the ironbarks. The white-naped and brown honeyeaters are with us all the year. When the first nip of winter is in the air, and the westerly strews clouds careless-like across the sky, you'll hear your first blood-bird, and with him, or a little later, the yellow-faced honeyeater or chick-up. An occasional blood-bird stays the summer out but few remain after October.

Another charming winter bird is the mistletoe-bird which has a single note absolutely identical with one of this "careless cardinal's" notes. Both keep high among the leaves and, as a flash of scarlet is the only indication of their presence, mistakes are easily made.

Our winter birds have a more exciting time on the whole. When a good stiff westerly is blowing it is exhilarating to watch the lapwings swooping and turning in the wind, or the fig-birds with the wind behind them literally accelerating through the air. They keep up such a chatter, too, that the winter would not be the same without them. The lapwing, incidentally, is the black-faced cuckoo-shrike—blue-jay to some—and nicknamed lapwing because when he alights on a branch before settling down, he will flap his wings—not with any haste or confusion, but quietly, as if he would feel more comfortable after having so flapped.

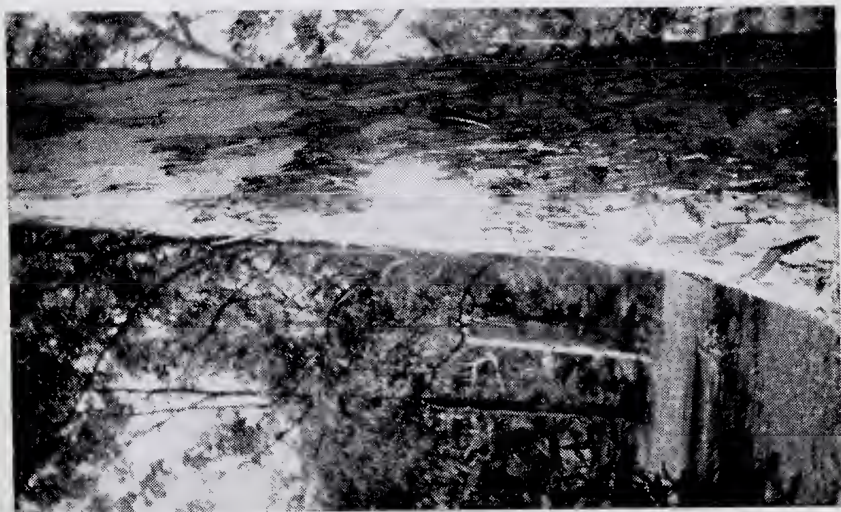
Always, of course, mixed up in everything is "Cranky Fan" or the Grey Fantail—she has earned my heartiest approval by not being afraid of me. In April we first hear her squeaky, cheeky song and, friendly and inquisitive, she stays all through winter. How wise of her not to outstay her welcome—she must know how extra glad we will be to see her next April! But then she misses our spring—and spring in my domain is very lovely—soft billowing clouds, and leaves that blow ever so softly, vivid greens, dark greens and greys. To quote the "Sentimental Bloke": "The bonzer smell of flowers is on the breeze," and, well, spring does something to the birds, too. To begin with, the Pallid Cuckoo arrives. Of course, the crazy thing arrived a



The dirty creek



The nice little creek



The paddock

couple of months early this year, possibly owing to the warmth of the winter. Every other year it has put in an appearance early in September and its haunting song is irresistible. At first it is only heard in the early morning and at dusk, but later sings all through the day. All the cuckoo calls are lovely, but elusive. This seems to be a quality common to all cuckoos because on the other side of the world Wordsworth wrote, "O cuckoo, shall I call thee bird, or but a wand'ring sprite?" I'm sure if he had had anything to do with our cuckoos he wouldn't have been so polite about it. However, the Koel Cuckoo (cooee bird) follows soon after his anaemic relation and his vibrant song is soon setting our heads singing. His is a dual personality—thunder in the air and blue-black banks of cloud, and from the other side of the hill (always the other side) the call of the Koel, expectant, threatening; and sometimes, like ye old black crow, ironical. We often called him the storm-bird when we were children, although that is the official nickname for the Channel-billed cuckoo. But just before those November storms, in the hush before it starts, the cooee birds are often heard. What a different bird he seems when the moon comes up, and from the ironbarks or the grey gums in the paddock comes a love song, strong and clear, passionate and persuasive. I can't resist him. Yet what a villain!—proof that a bird can sing and be a villain still. In case you have never heard it, the mating call of the Koel Cuckoo is quite different from the "cooee" call. It is heard more often at night and only in springtime. Nine o'clock seems to be the witching hour. The song slightly resembles that of the grey butcher-bird but is richer and more golden in tone.

Of course it is just as well we don't see much of the cuckoos, because they are not much to look at. The Pallid has a big head and a very clumsy flight. The Golden Bronze has beautiful greeny-bronze wing-feathers, but it also has a clumsy flight and when we recollect its mean habits, we cannot appreciate its fine feathers. The Koel is about the best-looking; he is slim and navy blue with a striking forked tail quite different from the others, but if anything, he has a nastier look in his eye than all the others put together. I've never actually caught the Koel out in a crime yet, but even without a bird-book a child could tell he was up to no good. Last year the white-naped honeyeaters took

on the Pallid cuckoo's offspring, and Mr. and Mrs. White-throated warbler devoted their energies to the education and advancement in life of the golden-bronze's young 'un. This year so far the White-throated warblers have had better luck but the white-napes have landed a golden-bronze, and so also has a yellow-tailed tit. I think it's dead mean!

This little white-throated warbler I mention is a first cousin to our acquaintance of the mangroves. Its wistful, elfin notes (rather like those of the mangrove warbler) wander down vaguely from the tree-tops. A stop to trace the singer is well worth while. The clear-cut white circle of throat above the yellow breast is rather enchanting. I like the white-throated warbler; it always seems cheerful and has a beautifully detached air—I've never seen it hobnobbing with other birds much, but I'm sure it isn't a snob. These questions are very important. We could never spend hours among birds if they didn't present more than ornithological problems. To know what they are is not enough—to know what they are like in themselves brings much more entertainment.

To return to the spring—the red-backed wrens are nesting in the long grass. They only seem to take one wife, although appearances certainly are against them. A few years back our redbacks had some bad luck. They built a dear little home in the grass with a neat side entrance and filled it with three charming babies. Unfortunately the creek rose rapidly and all this was swept away. Nothing daunted, the pair of them started on another nest and this time it was built about 20 feet away from the first nest, but well above high water-mark. In time, thanks to the intelligence of their parents, the eggs grew into fine citizens.

By October, the brown weebills are past the first fine frenzy and settling down to some good solid building. I found a nest about 20 feet from the ground, also with a side entrance. It was in a gum tree, just among the leaves on the outer edge. Through the coming months I watched the comings and goings with great interest. Eventually the nest was finished with, and I thought you naturalists would like to see it, so I set forth and tried to get it—well, the branch was too thin—that was no good, and I'm not strong enough to carry

ladders about. After I'd nearly stoned myself trying to throw a stone attached to a piece of rope across the limb and haul it down, I had to give up. If I got a stone sufficiently heavy to pull the branch down, I had not sufficient strength to throw it.

In the spring, too, the grey thrush delights us with his vocal efforts. He builds his nest lower down. I found an old one this year on the second bottom branch of a hoop pine—not very beautiful, but wonderfully cosy! I have often noticed that when we have a bird with a good strong voice, he will be surrounded by a lot of smaller birds. The call of the one seems to infect them all so that often in your ramble you will walk into a regular concert. The Rufous whistler will often attract a crowd; he is a cheerful soul and although he spends the whole year with us he means the winter to me. The heat of the summer quiets him a bit, but later he just sings and sings and sings—not a song, but a rhapsody. His whip-crack and prolonged slurring whistle are sure to be heard if you take a walk any time of the year, but never to such advantage as in the winter. He's such a gentleman, too. I do love a little polish. The white-throated warbler also spends the whole year with us, and the white-headed sitella. This is the only tree-creeper I have in my domain, although the white-throated tree-creeper may be heard on One Tree Hill. The sitellas rush about in family parties and look rather amusing as they tear upside down down tree or up, as the case may be. Bear with me but a while, and I will tell you about the mopoke that went to sleep in the fernery. There it sat on the slat roof sheltered from the westerly and snoozing in the morning sun. The interesting part about it was that the next night about dusk it flew up on the back verandah with such a surprised look on its face, made a quaint sound as if to say, "How d'you do," and flew off again. I really think it wondered if it had dreamt the previous evening—its evening—and had come to make sure. Then there are our owls, our swallows, and our willie wagtail. The owl wakes us all up about 2 in the morning by repeating its call notes 15 to 20 times. It's the most doleful, monotonous sound you ever heard. Our welcome swallows have 4 babies and have flying lessons from our electric light-wires. They can fly now, but are still fed

by the mother. When they see her coming with some tucker they will race to her and the winner takes it on the wing. And talking of these swallows, just stand in the rain and watch them some day. They are sure to be there—swooping and turning, somersaulting and twisting, flying low over the pools yet barely skimming the surface—flying so close that their russet throats and deep blue backs open one's eyes with wonder. Look up, too, what a gathering on the telephone wires ! What a happy, excited, gossipy gathering !

Our willie wagtail likes us so very much that he takes the cocoanut fibre from the fern baskets to build his nest. I've caught the scarlet honeyeater doing that, too. This willy has had a wonderful time—about full moon last month he could be heard singing in the moonlight about 1 or 2 each morning. In spite of the lack of sleep his nesting operations appear to be proceeding according to plan.

Of course, I have had to leave quite a few out—the black-faced and leaden flycatchers go through each February and September. You would love my flycatchers in their soft greys and oranges. They are easy to distinguish apart from their colouring, because when they land on a branch, their tails tremble ever so slightly.

From across the Pacific have come the words of a naturalist for whom I have the greatest admiration, John Burroughs, a naturalist in the fullest and wisest sense of the word. In one of his essays he says of his rambles, "Whichever way I go, I'm glad I came." And although the birds and trees and stones of these few paddocks are so very well known to me, such are their variety and charm that I say with John Burroughs, "Whichever way I go I'm glad I came."

PRESIDENTIAL ADDRESS.

By Dr. E. O. Marks; delivered 15th February, 1943.

On the occasion of his retirement, the President of this Club is expected to deliver an address. Would that I had either the mind or the matter, as I have the desire, to give you something worthy of the occasion, something of fresh scientific interest. But the times are such that none

of us can give our usual application to our scientific hobbies. At the back of everyone's mind, suppressed perhaps more in some than in others, is the sadness, the horror and the anxiety of the war and of its aftermath, though, fortunately, we have not in Brisbane felt the direct effects of enemy action.

For this immunity we have to thank the wonderful young men and women of the fighting and auxiliary services, both of our own Empire and our allies, who are enduring unlimited hardships and dangers to preserve our nationhood. Fifteen of our Club members are in full time service with the forces. One of them, Lieutenant George Kenneth Jackson, whom we knew as a member from his boyhood and who indeed, as a naturalist, grew up in the Club, has made the supreme sacrifice. He enlisted in the A.I.F. at the outbreak of the war and served in the Middle East, being through the siege of Tobruk. He returned to fight in Papua at Milne Bay and had only recently got his commission when he was killed in the attack on Sanananda.

Our profound sympathy goes to his young wife and to his parents, Mr. and Mrs. G. L. Jackson. Their sorrow and pride is shared by all members who will miss Ken Jackson's cheerful companionship and will long remember his enthusiasm, energy and venturesomeness, and not least his facility for finding aboriginal implements where others could see none. His wide interest in, insight into, and love for nature showed him to be a natural naturalist and we can recall some delightful talks he gave on his favourite subject, the Australian aboriginal. Mr. Longman, the Director of the Queensland Museum, of the staff of which Ken Jackson was a member, has told me what a great loss he is to the Museum being so fitted by natural bent to that kind of work.

Our sympathy goes, too, to our former President, Mrs. Aubrey Thomson and to Mr. Aubrey Thomson in the loss in the war of their son Comrie and their anxiety for their son Peter, a prisoner of war.

Two of our members, Mrs. Williams and Mr. W. D. Salkeld, who died during the year, will be greatly missed from meetings and excursions.

Owing to the difficulties of travel and accommodation mentioned by our Excursion Secretary, we have been to no

new areas. Consequently I have no new field on which to address you, but instead propose an

“Excursion in Local Geological History.”

This contains nothing new, nothing that is not familiar to all local geologists, but it may perhaps give a little more connected view to those of us who only get disconnected glimpses on our field excursions, and may point out the great gaps in our knowledge and the many problems for which we seek information in the field.

From the geologist's point of view we in Brisbane are very fortunate in having a great variety of structures and formations within our reach, even within the city quarried sections, show a geological rarity, a fossil land surface. By the ordinary citizen our schist areas, though providing nice hills for residential purposes, are regarded with disfavour because of the poor and stony soil which gives the would-be gardener such a heartache and backache in trying to make, and such a pride in achieving, a garden. But what gardener thinks of these rocks as being ancient sediments deposited in a long-ago palaeozoic sea or considers that they must have been derived from a land of still older rocks? These Brisbane schists are the oldest rocks we know of in south-east Queensland. Whence did their material come? The sands and muds, mostly fine, may have been transported great distances by water currents, so the land from which they were derived was not necessarily very near. Could a study of the schists from a petrological aspect give any information regarding the place of origin or the nature of the land?

Mr. C. C. Morton has suggested that the Greywackes which form part of the schist series and show fresh felspar fragments, indicate that the condition of denudation had been either frozen or arid.

The schists vary immensely from what are little altered shales and sandstones to quartzites, mica-schists and greywackes and include altered igneous rocks. Mr. Denmead regards them as being of three series:—

1. The Greenstones—altered basic igneous rocks, as seen at Petrie and Mt. Mee, and elsewhere.
2. The Phyllites, such as we have in Brisbane and vicinity.
3. The Greywackes, the dense hardened massive sediments such as we see on the eastern side of Tamborine Mountain.

They total an immense thickness of sediments and lavas, estimated by him at 75,000 feet, which were subsequently crumpled, twisted and tilted, and altered to varying degrees by heat, compression and shearing so that now they mostly lie at very steep angles with a prevailing N.N.W.-S.S.E. strike. What is their geological age or ages? Geologists have sought vainly for fossils and speculated almost as vainly. A few years ago Mr. L. C. Ball found some marine fossils of carboniferous age at Northbrook in rocks which until then were accepted as part of the schist series, but further examination has led some to the opinion that they belong to a more recent series.

Members of this Club may perhaps be lucky enough to find a fossil-bearing locality in the so-called schists or succeed in puzzling out the structure of the complex of varied rocks, and their relationship to the carboniferous strata at Northbrook.

The steep dips and almost uniform strike of these ancient strata indicate that after their deposition there must have been a period of mountain forming to which nothing comparable has since happened in this part of Queensland. The upturned and elevated rocks thus exposed to denudation became worn down to a surface which seems to have been somewhat similar to the surface of the same rocks at the present time. On this hilly land-surface, in Triassic times were laid down the extensive fresh-water formation of the Ipswich coal-measures and Bundamba sandstones and Walloon Coal-measures in continuous sequence.

In the Esk district there are Triassic strata under the Ipswich. In the neighbourhood of Brisbane the very beginning of the deposition of the Ipswich coal measures, and cessation of denudation of the then existing land was ushered in by an eruption of volcanic ash, the land being covered and thus preserved by what is now known as the Brisbane Tuff.

Preservation of vegetated swamps under subsequent sandstones or shales is, of course, a feature of all coal-measures, and the preservation of the vegetated surface under and between lava flows is also common, as for instance at Tamborine Mountain, but it must be surely a great rarity for a land-surface, an ordinary hilly land-surface to be preserved by being covered with a

volcanic ash and to form the base of a very extensive and important geological formation. Yet this is actually what we have exposed in some of our city quarries. It was a surface on which large coniferous trees grew in abundance, the silicified trunks of which are a notable feature in the exposed sections.

It was an irregular surface, of which the tuff and the Ipswich strata first filled the valleys, the later strata extending beyond, or overlapping the lower beds like a flood, so that we find either the basal beds or higher strata resting directly on the schists in an "unconformable" junction.

Subsequent changes in elevation and consequent denudation of the mesozoic strata has exposed again areas of schist once covered, exposing hills of schist like islands surrounded by the sea of sandstones and shales. Only in a few places does the present boundary line appear to have been determined by later faulting, though the whole area has been much faulted.

The chief interest for our present purposes is the time-gap which the unconformable junction represents between the deposition of the "schists" and the deposition of the mesozoic strata. In that interval the "schists" were folded and crumpled, and to a varied degree metamorphosed, then exposed to denudation and on their worn-down surface was deposited the later formation.

Over a very large part of Queensland a long period of fresh-water sedimentation now followed, in which the Ipswich coal-measures, the Bundamba sandstones and the Walloon coal-measures followed in continuous succession. The coal-measures were vegetated swamps alternating with deposits of sand and mud, probably carried by floods. Dinosaur footprints in the roof of a coal seam at Rosewood show that the animal walked about in the soft vegetable matter just before it was covered by a deposit of silt which made a cast of the prints. In other places fossilised tree-stumps growing *in situ* in the sands show that the sands were not deposited in deep water. Rather do these suggest a condition something like our present western Queensland where the rivers in flood spread out over wide areas of level plain depositing the sediments brought from the higher country, only with the difference of course, that the climate was much less arid than our

present West.

In Western Queensland, and also in the Maryborough district, the freshwater deposits were succeeded by marine strata, the sea apparently invading in cretaceous times areas previously freshwater.

The area now occupied by, or underlain by Mesozoic freshwater beds is very large, extending from the southern border to the Gulf of Carpentaria, and up the western side of Cape York Peninsula, and from Brisbane to the western border. Along the Eastern coast it extends from Brisbane to beyond Bundaberg on the eastern side of the belt of palaeozoic rocks which further north come right to the coast. This gives the suspicion that the sandstones may continue beyond Sandy Cape under the sea to the east of the palaeozoic rocks and be continuous with the sandstones of Cape York Peninsula, as is the case on the western side.

Even without this possible very large extension of area under the sea, the present exposed area of mesozoic rocks is very large and of considerable thickness,—a few thousand feet.

This is an immense volume of material, derived in mesozoic times from the denudation of the exposed areas of older rocks, on the west probably from the vast areas of ancient rocks further west, but in the east no doubt from the palaeozoic rocks forming the backbone of eastern Queensland.

To come back to the south-east corner of Queensland where we are holding our excursion, the change from the Ipswich and Bundamba to the Walloon coal-measures seems to have been accompanied by a change of conditions for the strata become more calcareous or saline, and the coal seams are of a different character. There is also a slight change in the flora to the Jurassic rather than Triassic types though many are common in both formations.

The change in rock type and perhaps also in the flora may be due to a change in climate or to a change in the material from which the rocks were derived. Personally, I fancy the latter is the likely explanation, and that there were probably volcanic eruptions on the land, the denudation of which altered the character of the resulting vegetation and sediments. There are some sections showing

volcanic rocks included in the Walloon strata very suggestive of contemporaneous volcanic action.

The story after the Walloon or Jurassic period is very confused in this area. Perhaps some day we will be able to puzzle it out. There are no known marine cretaceous strata following the Jurassic here; if they ever existed they have been removed. The later deposits of Cainozoic age, which we usually call the Tertiaries seem to occur as freshwater sediments in basins in the mesozoic rocks. There had been much denudation and in some places much faulting and folding of the mesozoic strata, though nothing comparable with what had happened to the "Brisbane Schists" prior to the laying down of the Ipswich coal-measures.

There were two major faults, West Ipswich and D'Aguilar and some folding with subsequent denudation prior to the tertiary deposits which lie unconformably on the mesozoic beds. The tertiaries themselves have since been faulted and folded to some extent.

Just as, owing to lack of fossil evidence we are uncertain of the age of the "schists," so geologists are uncertain where to place in the time scale the isolated basins of tertiary deposits, the fossils found sufficing only to refer them to the Cainozoic or Tertiary age.

Associated with the Tertiary beds in the Brisbane region are flows of a peculiar kind of basalt, as at Bald Hills, Runcorn, Cooper's Plains and Bundamba.

This basalt occurs at low levels, and extends along the shores of Moreton Bay from Redland Bay to Lytton and occurs again at Humpybong. It lies on the denuded upturned edges of the West Ipswich fault and seems to flood round the mesozoic hills at Manly. In two places bores have penetrated through 900 feet of it, one at Bundamba and the other at Birkdale on the shore of the Bay.

This is very puzzling, for there is no possible connecting valley between these two points where the lava flowed, now so far below sea level.

If we now come to consider the other basaltic rocks which occur to the south and south-west, Tamborine Mountain is perhaps the nearest of them to Brisbane. They are of different rock types from the basalt associated with the Tertiaries mentioned above and they occur largely as cappings of mountains or plateaus. These lavas were poured out in extensive and oft-repeated flows

of great total thickness over both the schists and the mesozoic strata, which have been intruded by sills and dikes. The surface on which they flowed was apparently not an even one. Between the flows there was often time for vegetation to grow on the basalt surface, now evidenced by charred wood and lignite. We do not know the former extent of these basaltic lavas, but we do know that it was very much greater than the present area covered for the simple reason that liquid lava, like water, flows in and floods the valleys or spreads over flat land, while the rock now occurs largely as mountain cappings with abrupt cliffs looking out over low country, from which it and much underlying rock must have been removed by denudation. Associated with these basaltic rocks are rhyolites and rhyolitic tuffs. The field relationship of these two very different types of rock are by no means clear, the more we see of them the more confused they seem (and we become). There is a lot of careful field observation required before we can hope for a solution. It is clear, from their present position, that these lavas, though of Cainozoic age, are very far from recent, for an enormous amount of denudation has taken place since the streams first started to flow on their surface. Consider Tamborine, the Main Range at Cunningham's Gap, Mt. Mistake, Mt. Edwards or the small area left at Mt. Glorious on the top of the D'Aguilar Range, and what a long period of denudation they indicate.

There is much scope for our geological observers to try and puzzle out the age of these basalts and their relationship to the basalt associated with the Tertiary deposits near Brisbane and along the shores of Moreton Bay, and the part played by these rocks in the development of our present topography.

May members of this Club find the solutions to the problems!

QUEENSLAND NATURALISTS' CLUB.

STATEMENT OF RECEIPTS AND EXPENDITURE
FOR THE YEAR ENDED 31st DECEMBER, 1942.

RECEIPTS.

| | £ | s | d |
|---|----|----|---|
| Balance Forward from 1941 | 47 | 15 | 1 |
| Subscriptions | 51 | 5 | 6 |
| Nature Lovers' Certificates | 0 | 12 | 6 |
| Sale of "Queensland Naturalist" | 0 | 1 | 0 |
| Sale of Jars | 0 | 6 | 0 |
| Sale of Tents | 29 | 10 | 0 |
| Hire of Lantern | 0 | 10 | 0 |
| Surplus from Camp, Christmas, 1941 | 0 | 18 | 0 |
| Surplus from Supper, November Meeting | 0 | 2 | 8 |
| Interest at Savings Bank | 0 | 18 | 0 |

£131 18 9

£40 War Savings Certificates held by George Street
Branch of Commonwealth Bank. Receipt for same held
by Hon. Secretary, Miss E. E. Baird.

EXPENDITURE.

| | £ | s | d | £ | s | d |
|--|---|----|---|----|----|---|
| Rent, Women's Club | | | | 12 | 5 | 0 |
| Insurance, Bookcase, Library | | | | 0 | 2 | 6 |
| Telephone | 6 | 16 | 7 | | | |
| Less Refund | 1 | 3 | 6 | | | |
| | | | | 5 | 13 | 1 |
| Petty Cash | | | | 12 | 0 | 0 |
| Barker's Bookstore (Magazines and Book) | | | | 2 | 10 | 6 |
| Clark and Mackay, Printing "Naturalist" | | | | 31 | 2 | 0 |
| Bryce, Cartage of Books and Cup- board | | | | 0 | 12 | 6 |
| Honorarium to Hon. Secretary | | | | 5 | 0 | 0 |
| Balance at Bank | | | | 62 | 13 | 2 |

£131 18 9

| | £ | s | d |
|--------------------------------|----|----|---|
| War Savings Certificates | 40 | 0 | 0 |
| Bank Balance | 62 | 13 | 2 |

Total

£102 13 2

Includes:

| | | | |
|---------------------------------|-----|----|----|
| Nature Lovers' League A/c. | £40 | 4 | 6 |
| Tent A/c. | £55 | 16 | 10 |

E. N. MARKS, Hon. Treasurer.

C. W. HOLLAND, Hon. Auditor.

PLATE I.



GEORGE KENNETH JACKSON.

THE QUEENSLAND NATURALIST

JOURNAL OF THE QUEENSLAND NATURALISTS' CLUB
AND NATURE-LOVERS' LEAGUE

VOL. XII.

APRIL, 1945

No. 5

GEORGE KENNETH JACKSON MEMORIAL NUMBER

VALE GEORGE KENNETH JACKSON

By HEBER LONGMAN, Director, Queensland Museum.

(Plate I.)

The Greek poet tells us that in the Golden Age men died of old age, passing away as if mastered by sleep. The dire tragedy of modern war is the death of young men of great promise. The news that Lieut. Ken Jackson was killed in action in New Guinea on the 12th January, 1943, was a crushing blow to his many friends. His attractive personality, his vivacity, his optimism, his enthusiasm, and the zest with which he tackled with a smiling face any problem gained for him many admirers and friends who profoundly regret the loss of this "Good Companion."

Born in Brisbane in 1914, he was educated at the Church of England Grammar School at East Brisbane and later studied privately. For two years he was at Thylungra Station, near Quilpie, and he wrote articles for magazines on his western experiences.

In 1937 Ken Jackson joined the staff of the Queensland Museum, attaining a long-hoped-for position. Here he did excellent work, especially in the Ethnological sections. As an instance of his enthusiasm, the reconstruction of Waieit, the Torres Strait god of fertility, from a multitude of small fragments gathered from the cave on Waier (Wyer) Island, forms an attractive exhibit in our Upper Gallery. He was a good all-round Museum man, and a keen collector. He made a special study of the aborigines of Moreton Bay and much of his work is on exhibition.

Ken Jackson was a member of the Royal Society of Queensland, of the Queensland Naturalists' Club, and of the National Parks Association of Queensland. Many aboriginal artifacts were shown by him as exhibits, but his

interest in natural history was not confined to one section. Two of his earlier papers were botanical reports of Easter Excursions, the first being on the Botany of Upper Cedar Creek in the "Queensland Naturalist," vol. viii., pp. 41-43 (1932), the other being on the Botany of Caloundra in the same volume, pp. 74-75 (1933). He wrote the following on ethnological subjects:—

1938—The Keperra Bora Ring, "Queensland Naturalist," vol. x., pp. 94-98.

1939—Ethnological Notes. Upper Albert River Excursion. "Queensland Naturalist," vol. xi., pp. 43-45.

1940—Comparison of Native Rock Shelters of Sydney and Moreton Bay, "Queensland Naturalist," vol. xi., pp. 92-94.

When war broke out he enlisted with the Australian Imperial Force in October, 1939. He was in England, Egypt and Syria and was in Tobruk for over six months during the famous siege. In April, 1942, he returned to Australia and went to New Guinea in August. He became a Lieutenant after Milne Bay, receiving his commission in the field. When last heard from, only four days before his untimely death, he had been Acting Company Commander for some time. Subsequently he received the distinction of being mentioned in dispatches. Some of his comrades who were with him in action have personally told me of his indomitable spirit and high courage. From the many letters received here, I know that Ken maintained his cheerfulness whether on board ship, in camp in England, on the deserts of Libya, in the caves of Tobruk and in the swamps and jungles of New Guinea.

During his services overseas he found time to collect over one hundred specimens for the Queensland Museum. Perhaps the most remarkable of these was a new type of land shell found near Girabub in the Libyan desert, which was appropriately named *Exiliberus jacksoni* by Mr. Tom Iredale. His latest specimens came from Milne Bay.

He also wrote notes on the "Cretaceous Deep Sea Deposits of England and the Shallow Sea Deposits of the Libyan Desert," which appeared in the "Queensland Naturalist," vol. xi., pp. 134-136, 1941.

Lieut. Ken Jackson was the son of Mr. and Mrs. G. L. Jackson of Highgate Hill, South Brisbane. His father is a Past President of the Queensland Naturalists' Club and his mother has been Hon. Librarian for many years.

She is also President of the Brisbane Women's Club and a well-known social worker. In April, 1942, Lieut. Jackson married Miss Dorothy Oldfield in Brisbane.

DUG-OUT CANOE FROM ROKELL RIVER, SIERRA LEONE, WEST AFRICA

By G. K. JACKSON

(Plate II.)

In discussing an ethnographical aspect of a native race such as the manufacture and use of its local craft, it is perhaps advisable to give a general idea of the race itself, of the country it inhabits, and then to link these observations with a description of the article in question.

Sierra Leone, lying as it does within the Torrid Zone and being well noted for the prevalence of various tropical diseases, has earned for itself the name of "The White Man's Grave." Even a cursory glance at the low-lying swampy land at the mouth of the Rokell River gives adequate proof of this condition.

Geographically the area is divided into two sections. The low-lying portions of swamp and rain-forest stretching away to the north and west, whilst to the south rise large hills, and fairly rugged mountains, almost completely clothed in a growth of rain-forest. Curiously enough the forest does not appear to possess the deep shade of olive green usually associated with such botanical features.

The natives themselves are mainly descended from negro slaves, liberated in this area many years ago following the general abolition of slavery.

In 1787 four hundred were placed ashore here. In 1792 a further 1,131, with still more following half a century later. Their language is Creole, the name of the negro population of America. They have reverted to, and likewise have developed many of the older arts, probably flavoured largely by contact with more primitive tribes which already inhabited the area. These crisp frizzy-haired natives, typical negroid types, are well built and muscular, a more or less universal trait amongst maritime tribes, who spend much of their time in the water.

The canoe in question is a dug-out, of rain-forest timber, about 12 feet in length (Plate II., fig. 1, 2, 3). The hull, with its greatest girth at the waist of the vessel,

tapers to an elongated point at either end. Throughout its entire length, the hull is very thin, being little over a quarter of an inch through, at any point. This stage was reached by the process of patient chopping and scraping. The gunwales are supported and strengthened by thwart sticks, from four to seven in number according to the size of the canoe, or the stability of its construction. Frequently they are arranged in pairs, and are attached by binding to the top of the gunwale. The stern, for about one-quarter of the length of the canoe, is covered in to prevent water being shipped. Most of the weight carries in this portion, as it lies directly abaft the paddler. On the forward end of this cover is a small sunken shelf surrounded by a supplementary gunwale, its purpose being to hold any odds and ends in the way of fishing tackle, etc. Ahead of this again is a tiny thwart in the bottom of the canoe on which the lone paddler sits.

The vessel is propelled by means of a single wooden paddle about three feet in length, with a large blade and short handle, the former possessing a shallow groove for half its length on either side (Fig. 4). I noticed one other which instead of having this groove, was figured with a double-ended broad-arrow (Fig. 5).

The method of using the paddle is to place one hand on the top of the handle, the other grasping it near the blade. It is changed from starboard to port by giving it a sharp twist of the wrist causing it to revolve rapidly. More infrequently this is done whilst passing it the other way.

The canoe bailer (Fig. 6) takes the form of a wooden scoop, after the style of a shallow coal-scoop in appearance, with a short handle and a flat shovel end with ridged sides about 18 inches in length overall. It is used by a scoop forward and upwards from between the paddler's legs throwing the water out. Frequently it is utilised as a supplementary paddle.

When this implement is not available, the water is removed from the canoe by contracting the leg, then shooting it forward with the side of the foot against the keel. The ultimate effect is the same.

In diving from the canoe the natives do so with an awkward plop, arms and legs spread in front of them and the body contracted forward. On entering it again, they throw their body across the vessel to maintain its balance,

PLATE III.

N.B.T.

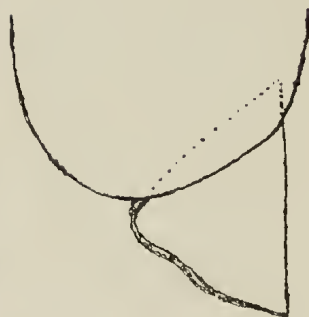


1

3



2

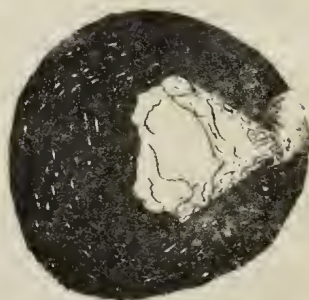


6

0 2 4 cm



4



5

A Microlithic Mounted Stone Engraver from Western Queensland.
Explanation in Text.

then follow with their legs, one at a time. Owing to the light construction of the canoe it rides almost directly on the top of the water and in the hands of a dexterous paddler can attain a surprising speed.

A MICROLITHIC MOUNTED STONE ENGRAVER FROM WESTERN QUEENSLAND

By NORMAN B. TINDALE, B.Sc., Ethnologist,
South Australian Museum.

(Plate III.)

Among the many interesting ethnological relics of the present-day aborigines of Western Queensland in the Queensland Museum is a hafted microlithic stone graver. My attention was first drawn to this unique specimen by the late Lieut. Ken Jackson, whose lamented death on active service in New Guinea has deprived us of one of the foremost of our younger anthropologists.

This graver is of particular ethnological interest because its form, method of manufacture and mounting shed light on the function, or one of the functions, of a special type of microlithic stone implement which has otherwise been found only as an archaeological relic on many camp sites in eastern and southern Australia. The particular stone has been found in association with other implements known to be in use by the aborigines of the period immediately prior to the break-down of aboriginal culture upon contact with Europeans. Hence this hint as to its mode of use is of definite interest to students of ethnology and pre-history.

The graver is a triangular flaked piece of opaque white chalcedony, set in black porcupine-grass gum at the end of a stick which is roughly 2 cm. in diameter, with the opposite extremity rounded and of somewhat greater diameter. The total length of the tool is 29 cm. The specimen was collected at Birdsville in Western Queensland and presented by Dr. T. L. Bancroft (Q.E. 2045). It was used in the scoring of grooves on wooden implements and in ornamenting shields and boomerangs. Dr. Bancroft at the same time and place collected mounted stone adzes or "tula," characteristic of the district, of

which one examined in the Queensland Museum (Q.E. 2046) is a typical original example of Lake Eyre basin technology in the second half of last century.

The stone implement mounted in the graver, upon which interest will focus, is a characteristic microlithic geometric implement of the angular variety, which seems to fall into that sub-section of the classification which by reason of the general triangular form is known to flint implement classifiers as "triangles." Owing to the partly enveloping gum, which conceals one margin of the implement, its exact form will remain in doubt until an X-ray picture can be secured; however, sufficient is visible to enable the stone implement to be classified with considerable assurance as an "equilateral triangled geometrical microlith." Its general form and the position in which it is set can be judged from Plate III. Figures 1-5, which show various aspects and a theoretical estimate of the possible shape of that portion which is not visible is suggested in dotted line at Fig. 6.

The visible portion of the microlith is approximately 11 mm. long, 9 mm. high and 10 mm. in greatest thickness. The triangular back is minutely secondarily chipped on both edges while the flake edge is without any signs of chipping. This may imply that the working edge is concentrated at the tip and against what is sometimes called the "chipped" back of the implement. Unfortunately no adequate description of the modes of holding of this graving tool has been obtained, but by analogy with mounted implements of kangaroo tooth and opossum tooth used by aboriginal engravers seen at work by the present writer in different parts in Australia, it is possible that the native artist used many different holds and hence was likely to have covered the gamut of possible grips in the course of his varied tasks. Although the exact method of using the implement is in doubt, it is interesting as yielding *prima facie* evidence that the use of mounted microlithic geometric flints was known to the natives of the Diamantina until the time of the decline of their culture in the period of contact with Europeans. In the area near and east of Birdsville, boomerangs and clubs are usually ornamented with parallel groovings and with carved designs, and it would appear that this graving implement is well adapted as a tool for this type of work.



Pomaderris notata S. T. Blake, sp. nov.

Fig. 1, portion of plant; Fig. 2, leaf, seen from beneath; Fig. 3, portion of upper surface of leaf; Fig. 4, flower-bud; Fig. 5, open flower; Fig. 6, sepal, seen from above; Fig. 7, vertical section of flower. Figs. 1 and 2, natural size; Figs. 3-7, $\times 8$. Drawn from type specimen.

PLANTS IN THE LAMINGTON NATIONAL PARK NOT PREVIOUSLY RECORDED FROM QUEENSLAND

By S. T. BLAKE, M.Sc., Queensland Herbarium, Botanic
Gardens, Brisbane.

(Plates IV. and V.)

In this paper some plants growing in the Lamington National Park on the McPherson Range and its offshoots are here recorded for the first time as occurring in Queensland. Besides these there is a number of undescribed species belonging to the families Apocynaceae, Asclepiadaceae, Cyperaceae and Gramineae which are to be discussed in special papers dealing with these families. Names of places outside the borders of the Lamington National Park are marked with an asterisk.

Family CARYOPHYLLACEAE.

Stellaria flaccida Hook. Comp. Bot. Mag. i. 275 (1835).

Mt. Merino, along side of track at edge of beech (*Nothofagus*) forest, 3650 ft., Oct. 4th, 1942, Blake 14658 (green, trailer with white flowers).

Known from N.S. Wales, Victoria and Tasmania. In Queensland known from a single small patch which has been re-examined in 1943 and 1944.

Family RHAMNACEAE.

Pomaderris notata sp. nov. (Plate IV.).

Frutex; partes novellae appresse sericeo-pubescentes admodum fulvae; ramuli tandem glabri plus minusve pruinosi, cicatricibus foliorum delapsorum conspicue notati. Foliorum laminae ellipticae utrinque aequae acutae vel apice admodum acuminatae interdum mucronulatae, marginibus integrae saepissime planae, supra juventute puberulae mox glabrae virides, subtus dense albo-pubescentes costa et venis primariis valde conspicuis, plerumque 1.8-3.5 cm. longae et 0.9-1.2 cm. latae; petioli pubescentes pro more 4-8 mm. longi. Flores cremei in paniculis terminalibus plus minusve pyramidalibus pro genere laxiusculis dispositi; alabastris subglobosi circa 1.5 mm. lati; thalamus brevis late turbinatus, pilosus; sepala ovato-oblonga, acuta, 1.4-1.5 mm. longa, extra dense appresseque pubescentia apicem versus plus minusve pilosa. Petala 0. Styli pilosi usque ad medium uniti. Ovarium inferius, pilosum.

A shrub about 2-3 metres high with whitish bark on the main branches; young shoots closely silky-pubescent and slightly tawny, the older branchlets glabrous, more or less pruinose, somewhat angular and rather closely marked with prominent leaf-scars; branchlets usually short with the leaves close together, sometimes elongated, slender and with few distant leaves. Leaves petiolate; blades elliptic, about equally acute at each end or the tip somewhat acuminate and at times minutely mucronate, entire, usually flat, 2 to 3 times as long as broad, mostly from 1.8 cm long and 0.9 cm. wide to 3.5 cm. long and 1.2 cm. wide, the upper surface green at first puberulous but soon glabrous, the lower surface densely and shortly white-pubescent; midrib and primary veins indistinct and impressed above, brownish and prominently elevated on lower surface; petioles pubescent, mostly 4-8 mm. long. Inflorescence a rather dense (but for the genus relatively loose), terminal, more or less pyramidal, closely pubescent panicle up to 6 cm. long and wide; pedicels 1-2 mm. long; mature buds subglobular, about 1.5 mm. wide. Flowers scented, about 3 mm. wide. Calyx-tube shortly and broadly turbinate, 0.5 mm. high and 1 mm. wide, pilose. Sepals ovate-oblong, acute, 1.4-1.5 mm. long, spreading, glabrous within, densely pubescent outside and there more or less pilose towards the tip. Petals 0. Anthers 0.8 mm. long, oblong. Styles pilose, about 0.9 mm. long, united to the middle. Ovary hairy on top, inferior.

Roberts Plateau, in rocky and sub-scrubby forest country, May 28th, 1929, *C. T. White* 6034 (large shrub, leaves paler beneath—young buds); Dress Circle, McPherson Range, common in shrubbery on rock slopes, ca. 2,900ft., December 12th, 1943, *Blake* 15379 (shrub 6-10 ft.; leaves dull green above, whitish beneath; flowers cream, scented) and November 13th, 1944, *Blake* 15445 (type) (shrub 2-3 m. with whitish bark; leaves dull green above, whitish beneath; flowers cream, scented).

This species, of which the fruit is not yet known, is most closely allied to *P. cinerea* Benth. to which it is very similar in leaf-shape, form of inflorescence and structure of the flower, but in *P. cinerea* the whole plant is hoary, the leaves are shortly white-pubescent on the upper surface even when old and they are more obtuse and with fewer primary veins, the leaf-scars on the branches are much less prominent, the buds are hoary and more densely though shortly pubescent, and the sepals are somewhat

shorter and narrower. There is a number of plants at Dress Circle (Araucaria Lookout) associated with such shrubs as *Leptospermum citratum*, *Denhamia pittosporoides* *Prostanthera ovalifolia*, *Acrotriche divaricata*, etc.

Family APOCYNACEAE.

Parsonsia induplicata F. Muell, Fragm. vi. 129 (1868).

Mt. Merino, in beech (*Nothofagus*) forest, 3,650 feet, October 4th, 1942, *Blake* 14656 (slender twiner with rather scanty turbid thin juice; leaves rich green above, paler or purplish beneath; young shoots and calyx more or less purple; corolla creamy white, the lobes more or less incurved—flowers); between Mt. Roberts and Mt. Merino in rain-forest, 3,000 feet, October 7th, 1944, *Blake* 15422 (slender wiry twiner with scanty watery juice; leaves green, paler beneath; flowers white, not scented—flowers); Mt. Roberts and Mt. Merino in beech (*Nothofagus*) forest, 3,100-3,800 feet, April 17th-18th, 1943, *Blake* 14925 (slender, wiry twiner, not very tall, with very scanty nearly colourless, but slightly turbid watery juice; leaves green or dull green above, pale green or purplish beneath—fruits); Mt. Hobwee, 4,000 feet, September 1st, 1929, *C. T. White* 6182A (flowers); *Springbrook, 3,000 feet, October 24th, 1931, *C. T. White* 8232 (small vine; leaves green above, often purplish beneath, flowers cream—flowers); *Springbrook, climbing over shrubs and trees in rain-forest, brown loam, ca. 3,000 feet, September 28th, 1930, *C. E. Hubbard* 4237 (leaves dark green above, purplish or pale green below; flowers white or purplish white—flowers).

Not uncommon, but when not in flower it closely resembles *P. ventricosa* F. Muell. and an undescribed species from the same locality. It was previously known only from north-eastern New South Wales. Hubbard's specimens were distributed from herb. Kew as "*Marsdenia* sp."

Family ASCLEPIADACEAE.

Marsdenia flavesceus A. Cunn. in Bot. Mag. t. 3289 (1833).

*Tamborine Mountain, November, 1916, *J. H. Simmonds*; Mt. Roberts, in rain-forest on hillside, 2,470 feet, April 19th, 1943, *Blake* 14933 (tall, slender liana up to about 1½ cm. thick; bark greenish with pale-coloured

pustular lenticels; white latex abundant in the younger parts, scanty in the lower part of the stem; leaves dark green above, pale green beneath; buds greenish to dull purplish; fruit green—buds and fruits); Mt. Roberts, eastern slopes, in rather light rain-forest, ca. 2,200 feet, December 20th, 1943, *Blake* 15382 (tall, slender liana; bark greenish with pale-coloured pustular lenticels; latex white, abundant in younger parts, scanty in lower part of stem; leaves dark green above, pale green beneath; flowers creamy white, faintly scented—flowers) and fruiting specimens from same plant, June 3rd, 1944, *Blake* 15405.

So far only a few plants have been seen, within and without the border of the National Park, chiefly along the upper part of the Hidden Valley track. Known previously from eastern New South Wales to as far south as Illawarra, where it was originally discovered by Allan Cunningham.

Marsdenia longiloba Benth. Fl. Austr. iv. 340 (1869).

North side of Shipstern Range, in chiefly *Tristania conferta* forest, on steep slope, ca. 2,000 feet, December 11th, 1943, *Blake* 15375 (slender wiry twiner of several yards with a little watery juice; leaves dull green above, paler beneath; flowers greenish white with sickly scent; pollen-carriers brown).

Only one plant seen. Elsewhere known from north-eastern New South Wales.

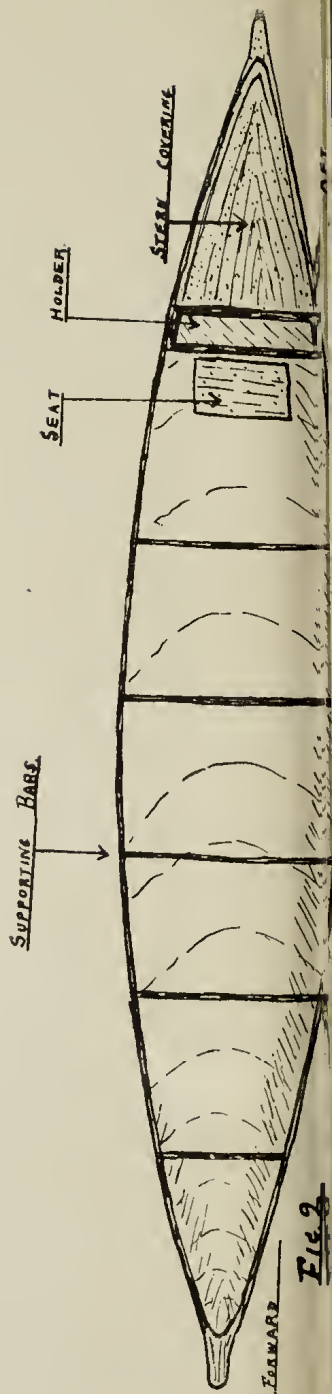
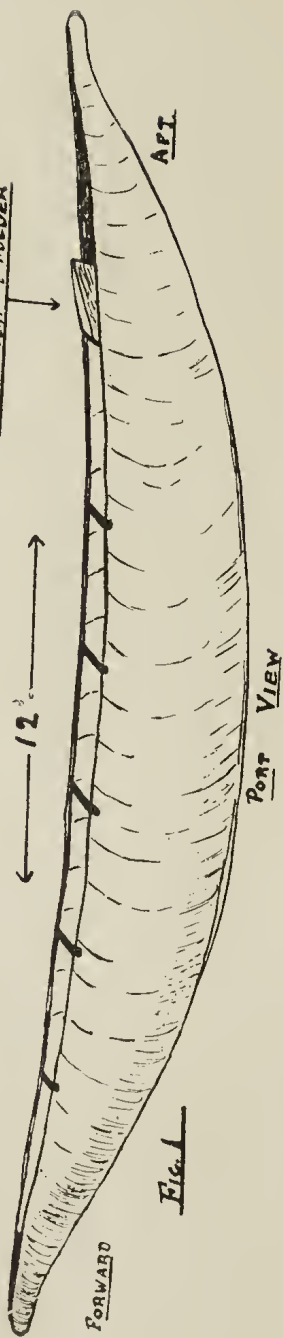
Family SCROPHULARIACEAE.

Euphrasia bella, sp. nov. (Plate V.).

Suffrutex humilis ramulosus, pilis uncinulatis hyanilinis scabriusculus. Caules vel erecti vel adscendentes vel repentes. Folia nonnunquam alterna, herbaceo-membranacea, saepius rugulosa, obtusa, basi cuneata, dentibus 2-6 rotundatis vel inaeque triangularibus grosse dentato-serrata, saepe glabrescentia, inferiora breviter pedicellata ambitu obovata vel oblonga, 8-13 mm. longa et 4-7 mm. lata, superiora gradatim admodum angustiora subsessilia. Bractae foliis superioribus subsimiles nisi paullo minores acutioresque, saepe alternae. Pedicelli filiformes, 3-6 mm. longi. Flores plures, laxè dispositi, circa 1.5-2 cm. longi. Calyx glabra vel fere glabra, florem dimidium superans, usque ad medium 4-loba; lobi inaequales, sub-oblongi, obtusi. Corolla extus parce puberula intus glabra; tubus calycem manifeste superans, basi subcylindricus sursum dilatatus leviter curvatus; labium superum leviter recurvum, tubo paullo brevius; labium inferum patulum, labio supero semper et tubo plerumque longius; lobi obovati obtusi praecipue labii superi leviter emarginati, antero-medianus quam ceteris longior admodum spatulatus. Filamenta parte adnata pilosa

PLATE II.

SUPPLEMENTARY GUNWALE
AROUND SEAT & HOLDER



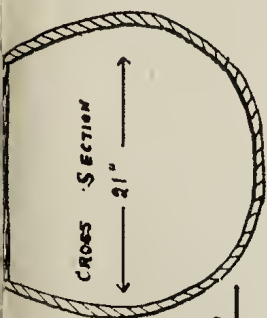


Fig. 3



Fig. 6

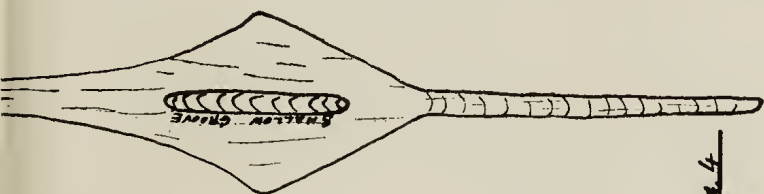


Fig. 4

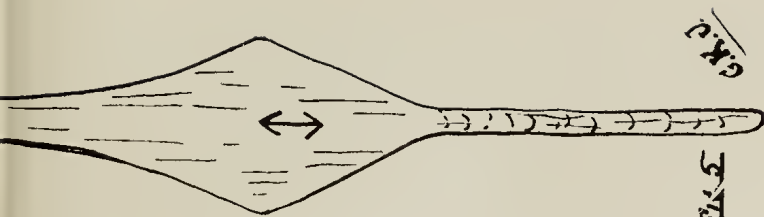


Fig. 5

Dug-out Canoe: Sierra Leone, West Africa. Explanation in Text.

ceterum glabra. Antherae similes cohaerentes, prope orifice hirsutae prope connectivum pilis paucis praeditae; loculi aequales aequae aristulati. Stylus glaber. Ovarium glabrum; capsula (ex exemplo Smithiorum) calyce sublongior, elliptica, apice truncatula mucronata.

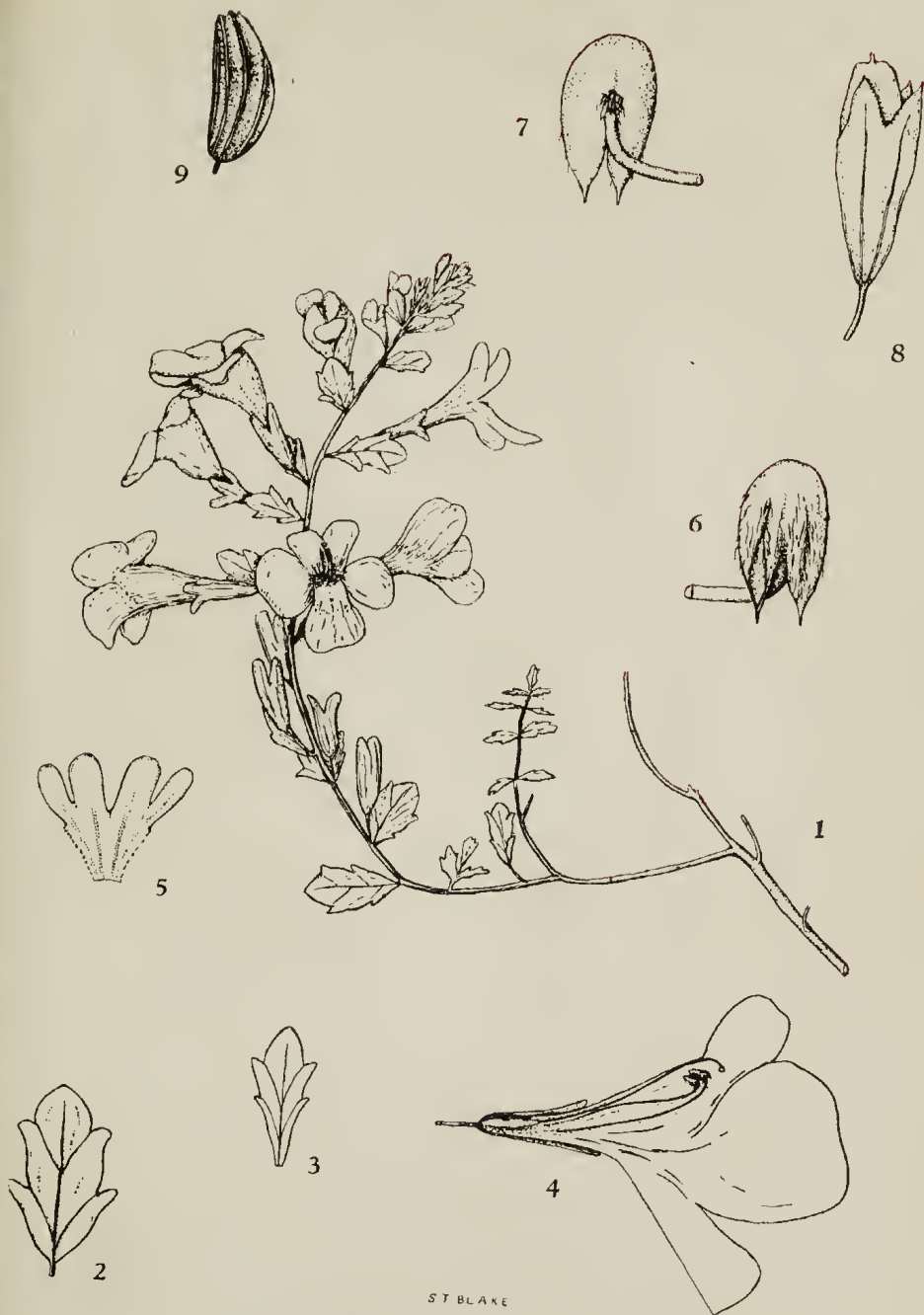
A subshrub up to 30 cm. high, somewhat scabrous. Stems hard and woody at the base, ascending and sometimes rooting in the lower part or erect, rather freely branched with spreading branches, the younger parts with small hyaline hooked hairs, the older parts often glabrous. Leaves opposite or those of each pair in the upper part of the stems more or less separated, frequently wrinkled, rather pale green but becoming blackish on dried specimens, obtuse at the apex, cuneate at the base, the margins coarsely dentate-serrate with 2-6 rounded or unequally triangular teeth, both surfaces with a few minute hooked hairs or glabrescent, the midrib and the few nerves depressed on the upper surface and elevated on the lower surface; lower leaves shortly petiolate, obovate or oblong in outline, 8-13 mm. long, 4-7 mm. wide; upper leaves gradually somewhat narrower. Inflorescence a loose terminal raceme; bracts often alternate, similar to the upper leaves except that they are somewhat smaller and more acute; pedicels filiform, 3-6 mm. long, glabrous. Flowers blue with pale throat with yellow mark on lower part, variable in size. Calyx 6-8 mm. long, subcampanulate, glabrous or nearly so, about $\frac{3}{5}$ as long as the corolla, 4-lobed to the middle; lobes unequal, suboblong, obtuse in flower but becoming acute in fruit. Corolla about 1.5-2 cm. long, sparsely puberulous outside, glabrous within; tube much exceeding the calyx, sub-cylindrical at base, dilated upward and there somewhat curved, 7-12 mm. long; upper lip slightly recurved, 6-8 mm. long; lower lip spreading, 9-10 mm. long and about a quarter as long again as the upper lip; lobes obovate, obtuse, especially those of the upper lip slightly emarginate, the antero-median longer than the others and somewhat spatulate. Staminal filaments pilose on the adnate part, elsewhere glabrous. Anthers similar, coherent, brown, 2 mm. long, hirsute near the orifice and with a few hairs near the connective; cells equal, aristulate, the awns all equal, 0.25 mm. long. Ovary ovate, glabrous; style glabrous. Capsule somewhat longer than the calyx, elliptic, subtruncate and mucronate.

Between Echo Point and Main Border Track, on bank of track, ca. 3,500 feet, December, 1942, *D. A. and L. S.*

Smith (small delicate trailing herb; flowers very showy, deep blue—flowers and fruit); Mt. Merino, near exposed edge of cliff, 3,650 feet, October 4th, 1942, *Blake* 14652 (type) (short bushy shrub of about one foot; leaves rather pale green; corolla light slightly lavender blue with pale throat with yellow mark on lower part—flowers); from same plant, October 7th, 1944, *Blake* 15417 (rather bushy with rather straggling stems; base woody; leaves green; corolla light slightly lavender blue with yellow mark on lower lip, throat and tube shading to bluish white—in flower); and again from same plant, November 19th, 1944, *Blake* 15456 (flowers).

A most attractive plant quite distinct from all the other Australian species of the genus in the freely branched, decumbent and sometimes stoloniform main stems, often alternate leaves, the bracts not very different from the foliage leaves, and rather loosely arranged prominently pedicellate flowers. In floral structure it is closest to *E. speciosa* R.Br. and *E. collina* R.Br., but like the other Australian species these are more scabrous plants with erect, simple or nearly simple stems, strictly opposite leaves and subsessile flowers forming terminal spikes with the bracts distinctly different from the foliage leaves. It differs from all the New Zealand species in the glabrous style and ovary. From the two New Guinea species which have externally pubescent corollas, equally aristulate anther-cells and suffruticose habit it differs in the toothed (not 3-lobed) leaves, loose many-flowered inflorescence, long pedicels, larger corollas with relatively larger lobes, and recurved upper lip, and the glabrous style. From the species of the Northern Hemisphere it differs in the similar, equally aristulate anther-cells and in habit. The pedicels seem to be longer in this species than in any other.

I have seen but two plants of this eyebright. One of these was at the summit of Mt. Merino, but it disappeared some time between October, 1942 and December, 1943; it was not particularly studied. All my specimens were taken from the second plant, growing at 110 feet below the summit. This plant is closely associated with a bush of *Helichrysum vagans* C. T. White, so closely, in fact, that the stoloniferous habit was not noticed at the earlier visits. The flowers are variable in size and to some extent in colour. No fruits have been found on this plant and the description of the capsules has been drawn up from the collection of D. A. and L. S. Smith. This collection, with



ST BLAKE

Euphrasia bella S. T. Blake, sp. nov.

Fig. 1, portion of plant; Fig. 2, cauline leaf, upper surface; Fig. 3, bract from middle part of inflorescence; Fig. 4, flower, in vertical section and somewhat flattened; Fig. 5, calyx opened out from below; Fig. 6, anther, front view; Fig. 7, anther, back view; Fig. 8, fruiting calyx with capsule; Fig. 9, seed. Fig. 1, natural size; Figs. 2-5, $\times 2$; Figs. 6-7, $\times 10$; Fig. 8, $\times 4$; Fig. 9, $\times 20$. Figs. 1, 4, 5, 6 and 7 drawn from life (Blake 15417), Figs. 3 and 4 from the type specimen, and Figs. 8 and 9 from specimen collected by D. A. and L. S. Smith.

the collectors' notes, suggests a weaker plant than the other, but the material is insufficient to give an adequate idea of the appearance of the plant.

Some species of *Euphrasia* are known to parasitise the roots of other plants, but there is no evidence that *E. bella* is parasitising the *Helichrysum* with which it is so closely associated.

Family CYPERACEAE.

Cyperus disjunctus C. B. Clarke in Kew Bull. Add. Ser. viii. 8 (1908).

McPherson Range, February 9th, 1912, *C. T. White*; January, 1919, *C. T. White*; Roberts Plateau, *Shirley*; Lamington National Park, in antarctic beech forest (*Nothofagus*, etc.), 3,700-3,800 feet, common, May 23rd, 1937, *Blake* 12972 (usually forming large green patches; rhizome creeping, stems solitary, spikelets blackish or dark brown); Upper East Canungra Creek, in sand between boulders in creek bed, 2,000-4,000 feet, June 3rd, 1932, *J. F. Miles* in herb. *Blake* 1335; Mt. Merino, abundant in beech forest, 3,500-3,750 feet, and extending to lower altitudes, November 19th, 1944, *Blake* 15458 (forms large loose clumps; culms 1-2 feet; sheaths purplish brown; leaves green; spikelets brown); Mt. Hobwee, in lower part of beech forest, April, 1933, *J. F. Miles*. *Near Numinbah, on steep slopes of Mt. Tenduragan, in edge of rain-forest, 1,800-1,900 feet, October 9th, 1938, *Blake* 13855 (somewhat loosely tufted, erect 1-1½ feet; leaves rich deep green above, paler beneath; spikelets brown).

A rather attractive, rich green, grass-like plant common in beech (*Nothofagus*) forest, but extending to distinctly lower altitudes. The Mt. Tenduragan specimens are from an unusually low altitude. Previously known from N.E. New South Wales.

Lepidosperma canescens Boeck. in Linnaea, xxxviii. 330 (1874).

*Mt. Maroon, common in rock crevices, 2,000-3,000 feet, forming small or large rather open dull green tufts, September 3rd, 1939, *Blake* 14109 (stems erect, 2-3 feet, spikelets grey-brown); *Mt. Barney, very common among boulders on rocky slopes, 1,500-2,200 feet, June 11th, 1939, *Blake* 14100 (densely tufted, erect, 2-5 feet, green or dull green; spikelets grey-brown); Lamington National Park, near source of Nixon's Creek, abundant in *Eucalyptus-Casuarina* forest, forming large masses, chiefly on damper

slopes, ea. 2,600 feet, October 8th, 1944, *Blake* 15424 (stems very oblique, often forming tangled masses, up to 12 feet or more, green; spikelets dull grey or dull brown) and *Blake* 15425 (small starved specimens from a dry bank).

Previously known from New South Wales, Victoria and South Australia. On parts of the McPherson Range, particularly near the source of Nixon's Creek, near Surprise Rock, and on parts of the eastern side of the Coomera Gorge, this plant forms large tangled masses of tough rush-like stems on ground where the water-table is forced close to the surface due often to a stratum of obsidian. It is commonly associated with *Schoenus melanostachyus* R.Br. of similar habit and when not in flower the two are almost indistinguishable.

Family GRAMINEAE.

Deyceuxia Rodwayi J. W. Vickery in Contrib. N.S. Wales Nat. Herb. i. No. 2, 60 (1940).

McPherson Range, southern scarp, between Mt. Hobwee and Mt. Merino, at Daeelo Lookout, in small open rocky patch, 3,650 feet, December 21st, 1943, *Blake* 15387 (densely tufted, oblique and slightly nodding, ea. 9-15in., green; spikelets paler or purplish).

An interesting delicate grass previously known only from Tasmania. Determination by Miss J. W. Vickery.

Deyceuxia parviseta J. W. Vickery l.c. 71 (1940).

Shipstern Range, on tracks through *Eucalyptus-Casuarina* forest, ea. 2,500 feet, March 25th, 1941, *Blake* 14311 (tufted, erect, 6-18in., dull green; spikelets green to purplish).

Later observations have shown that this attractive grass, which was previously known only from New South Wales, is rather common on Shipstern Range. The determination has been verified by Miss Vickery, who revised the Australian species in the paper cited.

Family ORCHIDACEAE.

Pterostylis longifolia R.Br. Prodr. 327 (1810).

Shipstern Range, northern slopes, in *Eucalyptus-Casuarina* forest with undergrowth, on grey stony soil, 2,600 feet, June 3rd, 1941, *Blake* 15402 (stem erect, purplish at base, passing through dark green to light green at top; leaves rather dark green; flowers mostly green, but tip of sepals pale brownish, margins white and veins dark

green). *Tamborine Mountain, July, 1925, *Hilda Geissmann*.

Elsewhere known from New South Wales, Victoria, South Australia and Tasmania. It had been recorded as occurring in Queensland by F. M. Bailey in his *Queensland Fl.* v. 1577 (1902), but the specimen on which the record is based belongs to another species which has been determined by Rev. H. M. R. Rupp as *P. obtusa* R.Br. Mr. Rupp has kindly donated to the Queensland Herbarium one of the specimens collected by Miss Geissmann (Mrs. H. Curtis) and has verified the determination of my plant. He writes that the Queensland specimens have smaller flowers than are often met with in the southern States.

THE RUFOUS WHISTLER—SOME NOTES ON SONG AND MIGRATION

By NOEL JACK, [REDACTED], Brisbane.

Life histories of Australian birds are rare. When the shooter, the trapper, the tourist, the species hunter and that mythical authority, "the bushman," have had their say, the fact remains that very little is known of the everyday life of even the most common of Australian birds.

Association with one of the most talented of Australian songsters has prompted the above remarks. *Pachycephala rufiventris*, in all his subspecific forms, should be known to the majority of Australians (Tasmanians excepted), and yet, with a few interesting exceptions, references to him in Australian literature are scarce, very casual, and in some cases, not very complimentary—for instance, the inflicting of the title "Thick-head" upon the genus and the reference of a very early writer to some of the Rufous Whistler's notes as resembling the "cries of a whipped dog!"

In the south the Rufous-breast is a migrant. In Brisbane he is never absent from the district, but the observers cannot fail to notice an unmistakable variance in the numbers and behaviour of the Rufous Whistler population throughout the year. In fact, it would be a strange thing if he were not affected by the behavior of the rest of the feathered community. Many species participate in a semi-annual migration in the spring and autumn, a phenomenon which is of outstanding importance to the field naturalist, so far-reaching is its effect upon the avian

population of a district. At times, one is tempted to regard the term "fixed," as applied to avian species, with a certain amount of suspicion.

The Rufous-breast is to be heard at his best in the Spring, although the writer is tempted to modify that statement considerably on recalling some particularly brilliant example of late Autumn song, delivered on a bright sunny day in May. Weather conditions allowing, the developing song of the Rufous-breast can be heard throughout the Winter months, to reach its peak of perfection in late August and September, and contrary to general opinion, continuing right through the nesting period. Late Summer and early Autumn sees a diminution in song. The oppressive heat of the Queensland summer, the responsibility of young birds, or the approach of the moult may be responsible for this state of affairs.

In Autumn, March, the resumption of song by the adults and the peculiar efforts of the young birds can be heard. Almost a ~~month~~ to springtime fervour is observed among the Rufous Whistler population, and it is just a matter of opinion as to whether the autumnal song, at times, does not equal the best of the Rufous-breast's springtime efforts. Evidence of the Autumnal migration is seen at this period.

Attempts at phonetic description of bird song are liable to raise violent controversies, so seldom do bird observers agree upon the exact phrasing of a bird's vocal efforts; but until some alternative method is devised, phonetic description has to be used, not forgetting, of course, its obvious limitations.

Observed at a few days old, the Rufous Whistler, a blind, helpless, dark-skinned, yellow-japed object, can muster a feeble twitter. Once on the wing, October or November, they utter a short low whistle. The young birds' first attempts to master the characteristic note is very comical at times. The adults' song also undergoes some modification in the late Summer, January and February, and some very creaky notes are heard from both adult and young. The Rufous Whistler's most frequently uttered note is the simple phrase, "ee-yip" or "ee-yoo." This note can be heard at any time of the year, and the young birds' attempt to master this note is responsible for some most peculiar noises. At times it seems as though he were trying to imitate his relation, the Golden-breast and even a note resembling the whistle of a Black-faced Flycatcher

has been heard. No suggestion is being made that the Rufous-breast should be added to the already long list of mimics. This similarity to the notes of other species is merely accidental and a phase of the developing song.

As his name implies, the note of the Rufous-breast is a whistle. At times, the simple "swee-it" of the Rufous-breast (and also the Golden) has quite a human flavour about it. At his best, the Rufous Whistler can give vent to a brilliant outburst, unequalled among Australian song-birds. A clap of thunder, or a loud explosion may supply the particular stimulus (a habit peculiar to species of *Pachycephala*), while at other times the song is just spontaneous, or, as is often the case, a reply to the female, young, or another male.

"Witchee witchee witchee witchee!" he cries, or "witchee witchoo witchee witchoo!" given fortissimo and with all the vigour of which the male is capable. There are many variations, "wittee chooee wittee chooee!" or "chee witchee chee witchee!" or "chirree chirree!" or "chickoo chickoo chickoo!" A characteristic habit, that of rocking himself excitedly across his perch, often accompanies this outburst. Often a murmured "wee-a-nit wee-a-nit!" precedes the whistling note as though the singer were winding himself up to greater efforts.

Often found in family parties of a male, female and one or two young, the Rufous-breast sings vigorously into June and early July, but generally inclement weather, rain, or westerly winds, quietens him down in July and early August. The young males, some semi-coloured, and others now showing the full adult plumage, which takes at least two years to develop, begin to seek out territory and mates and early evidence of the springtime migration now begins to manifest itself among the feathered community. Singing males are often heard passing through the town and suburban areas and the town dweller, who has ears for that sort of thing, may hear the happy springtime melody of the Rufous-breast among the branches of the Camphor Laurel and Jacaranda tree. Many pairs are nesting by August and all who have been fortunate enough to find territory and mates have settled down to home building by September. Just how far the meanderings of the male bird, in his quest for a mate and nesting site, take him is impossible to estimate with any degree of certainty. The female also, is anything but the mere passive creature that early naturalists would have us believe she is. The Rufous

Whistler is now a bundle of energy. His song can be heard at every hour of the day and the female, although lacking the full-bodied effort of the mature male, can sing quite well. Immature males in speckled plumage are often mistaken for females by the uninitiated. The antics of the male are well worth watching. With drooping wings and tail spread fanwise, he approaches the female rocking excitedly across his perch and uttering an agitated "whirrit whirrit!" or "weearit weearit!" or "whirrit ceit! whirrit ceit!" The female invariably responds in a similar manner and will often crouch down upon the perch and move her wings in a trembling manner. The imaginative listener may be tempted to declare this a courting display, were it not for the fact that the Rufous-breast is observed going through the same procedure under many different situations.

For variety and sustained effort the Rufous Whistler has few superiors among Australian songbirds. He is neither shy nor temperamental. He sings on the nest—the male Rufous-breast (and also the Golden) although taking little part in nest building, assist in the incubation and rearing of the young—sings while his or her bill is full of insects or nesting material; sings during the heat of the mid-day and afternoon and the well-known response to any loud report often is responsible for a brilliant effort during a thunderstorm. His whistling note rings out loud, clear and vigorous and generally following upon this is a series of notes often sustained for quite a period, thus absolving the Rufous-breast from the charge that has been laid against some of our song birds, that of being short-winded. "Choo choo choo choo!" he cries or "choo-oo choo-oo!" or "chee-yoo chee-yoo!" or another variation. "ee-yoo ee-yoo!" Another phrase, "chip chip chip chip!" not quite as hard as phonetic interpretation might suggest it. Another series of notes, "whit whit whit whit!" or "ee-ip ee-ip ee-ip or "eep eep eep eep!" rising to a crescendo; the Rufous-breast is capable of many variations in his song.

A further series of notes includes the familiar "ee-chong!" or as it sometimes sounds, "ee-choo!" or "ee-young!" For a bird to repeat this twenty times or over is not uncommon. Perhaps his sweetest note is the phrase "oo-whee!" or as it is sometimes given, "too-whee!" or "too-too-whee!" The "whee" is emphasised and extended, giving, at times, a bell-like tone and repeated

many times.

Nesting and incubation do not deter the Rufous Whistler. Two males, occupying adjoining territory, will often indulge in vocal competition across the intervening space. The female is quieter, but not songless. If fortune favours him—the rearing of young birds is full of tragedies—he soon has his young on the wing and in many cases leaves his territory and starts to wander with his family. His song diminishes for a period to re-appear in the Autumn, whence he is caught up with many others of his kind in the Autumn migration. Just what happens to him and his family is a problem that will be solved only when more scientific and effective methods of bird-observing are in vogue. The following of individual birds in the field is a highly unsatisfactory and hazardous affair at present.

There are many excellent qualities in this Rufous songster and his lady with the speckled coat. The ornithologist, the field naturalist and the lover of nature will all find themselves much richer in experience in having made their acquaintance.

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No. 6

EVENING MEETING, 19th July, 1943.—The President, Mr. C. T. White, occupied the chair and about 40 members and friends were present. Master Kenneth and Miss Pauline Smith and Master Alan Loveday were elected to junior membership. Reports on the excursion to Downfall Creek were given by Dr. Marks (geology), Mr. White (botany), and Mr. Barker (ornithology). Dr. D. A. Herbert gave a lecture on Fungi, illustrated by specimens. Miss Carriek tabled a copy of "Wild Life" with pictures of fungi; Miss Clark tabled specimens of wildflowers collected at Burleigh Heads.

EVENING MEETING, 16th August, 1943.—The President, Mr. C. T. White, occupied the chair and about 120 members and friends were present. Master Brian Harris was elected a junior member. A series of coloured films was shown by Mr. Taranhoff and Mr. Crook.

EVENING MEETING, 20th September, 1943.—The President, Mr. C. T. White, occupied the chair and about 40 members were present. Mrs. Munns, Mrs. Drain, Mrs. Mylrae and Mr. Peter Mylrae were elected to membership. Reports on the excursions to Sunnybank (August) and the Chermside hills were given by Dr. Marks (geology), Mr. White (botany) and Mr. Barker (ornithology). The evening was devoted to exhibits, the exhibitors being Dr. Bryan (crystals), Dr. Marks (various minerals and an old book with descriptions and illustrations of Australian animals), Mr. J. E. Young (native orchids in cultivation, wonga vine in flower and ethnological specimens), Mr. Barker (native orchids in cultivation), Mr. H. Curtis (native flowers in cultivation), Miss Clark and Miss Carriek (plants from Burleigh), Mr. White (wild flowers from Tin Can Bay, Chermside and the Botanic Gardens), Miss Baird (books on wildflowers) and Miss France (Hawaiian chalice flower).

EVENING MEETING, 18th October, 1943.—The President, Mr. C. T. White, occupied the chair and about

40 members were present. Miss D. Coxon and Mr. C. Dunn were elected to membership. Reports of the week-end spent at Camp Mountain were given by Dr. Marks (geology), Master Brian Harris (birds), and Mr. Blake and Mr. White (botany). Miss M. Holland gave a lecturette on the birds at Binna Burra, illustrated by pictures. Lient. E. Williams showed postage stamps with pictures of birds in their designs. Mr. G. H. Barker forwarded pictures showing how the colouring of the eggs of cuckoos match that of the eggs rightfully belonging to the nest. Mrs. Lydement tabled a book on New Zealand birds and Miss Foote sent specimens of wild flowers from Stanthorpe.

EVENING MEETING, 15th November, 1943.—The Vice-president, Miss H. F. Clarke, occupied the chair and about 35 members were present. Mr. S. Dragona was elected to membership. Reports on the excursion from Ferny Grove to Keperra were given by Mr. Blake (botany) and by Mr. Barker and Mr. Jaek (ornithology). Mrs. H. Curtis gave a lantern lecture on the trees and birds of Tamborine Mountain. She also exhibited a nest of the devil-bird and flowers from her garden. Miss Williams exhibited a *Cymbidium* and Mr. Dunn exhibited other flowers.

ANNUAL MEETING, 21st February, 1944.—The chair was occupied by the President, Mr. C. T. White, and about 50 members were present. Mr. N. Lahey was elected to membership. The Annual Report, read by the Honorary Secretary, showed that ten evening meetings and nine field excursions had been held and that attendance had been good. Twelve new adult and five new junior members had been elected. The Honorary Excursion Secretary reported on the field excursions; two were week-ends at Camp Mountain, the others were held on Saturday afternoons. The financial statement showed a credit balance of £90/0/5. The following office-bearers were elected: President, Miss H. F. Clarke; vice-presidents, Mr. W. Arundel and Mr. S. E. Wright; hon. secretary, Miss E. E. Baird; hon. librarian, Mrs. G. L. Jackson; hon. excursion secretary, Mr. G. H. Barker; hon. treasurer, Miss E. N. Marks; hon. lanternist, Mr. W. J. Sanderson; hon. editor, Mr. S. T. Blake; committee, Miss M. Holland, Dr. E. O. Marks, Dr. D. A. Herbert, Mr. G. L. Jackson; hon. auditor, Mr. C. W. Holland. Miss Clarke then took the chair. The retiring

President then delivered his address on "The Wattles of the Brisbane District".

EVENING MEETING, 20th March, 1944.—The President, Miss H. F. Clarke, occupied the chair and about 80 members and friends were present. Mrs. Renard, Miss J. Berg, Miss D. Arlott, Dr. M. T. Hickey, Messrs. H. J. T. Bake, Donnan, and A. Love were elected to membership. Reports of the excursion to the Sherwood Arboretum were given by various members and thanks for hospitality were expressed to Dr. and Mrs. Croll. Mr. Rhys Williams screened films showing timber-getting, wild flowers at Angourie and some scenes in Ceylon.

EVENING MEETING, 17th April, 1944.—The President, Miss H. F. Clarke, occupied the chair and about 35 members were present. Mrs. Waddle and Mr. K. Harley were elected to membership. A letter from the Town Clerk was read, being a reply to a protest from the Club about the condition of the Chelmer Swamp and the Sherwood Arboretum; improvement was promised when possible. Reports on the Easter excursion to Camp Mountain were given by Dr. Marks (geology), Dr. Herbert, Mr. White and Mr. Blake (botany), Miss Holland and Mr. Barker (ornithology) and Mr. Young (native bear and the nest of a possum). The excursion to Woogaroo was reported on by Messrs. White and Blake. Mr. Arundel read and commented on a list of birds seen by Brian Harris on Tamborine Mountain during Easter. Photographs taken at the Easter Outing was tabled by Mr. Rowley. A spray of *Hoya* was exhibited by Miss Williams. Mr. J. E. Young tabled some aboriginal artifacts and Mr. Smith showed two stone choppers from Rochedale. A copy of Rupp's "Orchids of New South Wales" was presented to the Club by Mr. Barker.

EVENING MEETING, 15th May, 1944.—The President, Miss H. F. Clarke, occupied the chair and about 40 members were present. Mr. F. Bray was elected a member of the club. Mr. Jack reported having seen forty-two species of birds during an informal excursion to Closeburn. The monthly excursion to Ferny Grove was reported upon by Messrs. White and Blake (plants) and Mr. Harley (birds). The evening was devoted to exhibits, the exhibitors being Miss MacCallum, Miss Marks, Miss Holland, Dr. Marks, Dr. Herbert, Mr. White, Mr. Rowley

and Mr. Blake. The book "Australian Wild Life" was presented to the Club by Miss Baird.

EVENING MEETING, 19th June, 1944.—The President, Miss H. F. Clarke, occupied the chair and about 50 members were present. Mr. H. Carlton and the Misses Burton were elected to membership. Mr. E. F. Riek gave a lecture on "Crayfish", illustrated by specimens. Some photographs of birds taken by Mr. Fenton Robinson were tabled by Mr. K. Harley and commented upon by Mr. Jack. Miss Marks exhibited some beetles. Various flowering specimens were exhibited by Messrs. White and Blake.

EVENING MEETING, 17th July, 1944.—The President, Miss H. F. Clarke, occupied the chair and about 40 members were present. Miss C. Peddie was elected to membership. Reports of the excursion to the Darra Cement Works were given by Dr. Marks and Messrs. Barker and Blake. Mr. W. J. Sanderson exhibited several films; some, taken by himself, showed the white-browed scrub-wren at Mt. Coot-tha and flowers and insects in his garden; others, loaned by the Department of Public Instruction, showed spiders, beavers and bees at work and also views at Taronga Park. An old book was exhibited by Miss Marks. Some plants by Mr. Blake and a spider by Mr. Harley.

EVENING MEETING, 31st August, 1944.—The President, Miss H. F. Clarke, occupied the chair and about 55 members were present. Miss Moira White and Miss Jeanette Hislop were elected to membership. Club members were invited to attend the coming meeting of the Royal Society. Reports on the excursion to Kuraby were given by Mr. White (botany) and by Messrs. Barker and Jack (ornithology). Mr. D. F. Gray gave a most interesting address on "Penicillin" illustrated by lantern slides. A flower of *Hakea* was tabled by Miss Clarke and some books were tabled by Mr. Barker.

EVENING MEETING, 18th September, 1944.—The President, Miss H. F. Clarke, occupied the chair and about 50 members and friends were present. Master Ronald Cullen, of Kowbi, was elected a country member. The evening was devoted to an exhibit of native flowers, some from cultivation; of the latter a number were received from the Melbourne Botanic Gardens. Mr. Barker exhibited a book of Australian Flowers published in 1887.

EVENING MEETING, 16th October, 1944.—The vice-president, Mr. W. Arundel, occupied the chair and about 40 members were present. Mr. K. T. Cameron and Mr. W. R. Close were elected to membership. The excursion to Downfall Creek was reported upon by Mr. Blake (plants), Miss Holland (birds) and Miss Marks (mosquitoes). The evening was devoted to a series of lectur-ettes on birds; Miss Holland and Mr. Arundel spoke on local birds, while Mr. J. Robertson spoke on some birds of North Queensland and read a list of birds seen at Caloundra by Dr. Cummins. Mr. Lord sent notes on some birds of Murphy's Creek.

EVENING MEETING, 20th November, 1944.—The President, Miss H. F. Clarke, occupied the chair and about 40 members were present. Mr. E. J. Smith, of Kalbar, and Mr. T. Hunt, of Ipswich, were elected country members. The trip to Sandgate was reported on by Dr. Marks (geology), Mr. White (botany) and Mr. Barker (ornithology). The evening was devoted to exhibits, the exhibitors being Miss Marks (mosquito infested with mites), Dr. Marks (various geological specimens), Mr. Harley (old birds' nests), Mr. Barker (specimens of kingfishers), Mr. Young (flowers from his garden), Mr. White (specimens of New Guinea plants) and Mr. Schofield (legumes).

ANNUAL REPORT FOR YEAR ENDING FEBRUARY, 1944

Ladies and Gentlemen,

The Council of the Queensland Naturalists' Club presents the Annual Report on the work of the Club.

Natural History pursuits have been carried forward during the year at evening meetings and field excursions.

MEETINGS.—There have been ten evening meetings, nine field excursions and seven Council meetings during the year. Attendance at Council meetings has been as follows:—Mr. C. T. White 7, Miss Clarke 6, Mr. Arundell 4, Dr. Marks 6, Miss Baird 7, Mr. Barker 6, Miss Marks 6, Mrs. Jackson 4, Dr. Herbert 3, Miss Holland 6, Mr. Wright 2, Mr. Sanderson 5, Mr. Blake 5.

Attendance at evening meetings has been good, the average being 51. Interesting and instructive lectures dealing with Natural History have been given. Many were illustrated with lantern slides and others by speci-

mens. The lecturers were Mrs. Jones, Mrs. H. Curtis, Miss Holland, Drs. Wade, Bryan, Herbert and Marks, Lieut. Williams, Messrs. White and Barker. At two meetings colour pictures were shown by Messrs. J. Robinson, Taranhof, and Crook.

Reports of Easter Camp were given in the first week of May when several members spoke about items of interest they had noted. The September meeting was devoted to exhibits when natives flowers were tabled.

Reports of field excursions were given at evening meetings and interesting specimens tabled by various members.

MEMBERSHIP.—The death of Mr. H. Tryon, a foundation member of the Club, occurred towards the end of the year. Twelve new adults and five new junior members have been elected during the year and four resignations have been received. There are now 155 members of the Club.

NATURE LOVERS' LEAGUE.—Very little work has been done in this connection.

"QUEENSLAND NATURALIST".—Two issues of the Journal have been made during the year.

GENERAL.—As shown by the financial statement, donations have been made to the Red Cross and to the Smokes for Sick Soldiers' Fund. These were collected at the meetings in May and August when Messrs. J. Robinson, Taranhof and Crook screened colour films. The thanks of the Members are due to these gentlemen.

Representations were made to the Brisbane City Council requesting improvements at the Botanic Gardens, especially in the botanical side. Later at an interview with the Superintendent of Parks and Gardens it was stated that little could be done at present due to lack of labour, but a big improvement was promised when times become normal.

E. E. BAIRD, Hon. Sec.

REPORT OF HON. EXCURSION SECRETARY, 1943.

Considering the war conditions ruling and the difficulty and often the impossibility of making any arrangements for anything like distant outings or Camps, the past year provided quite a number of very interesting excursions. At most of them the attendance was good and the different reports presented at subsequent Evening Meetings showed that quite a lot of good and interesting

material was collected or recorded. The first one, a ramble from Salisbury to Sunnybank, was over a lot of familiar ground on a warm afternoon, but the pause at the Tea Gardens compensated for the journey to reach it. Some very interesting Dwarf Banksias were pointed out by Mr. White, and the birds at the Oasis were very comfortably housed. At Easter Time, our good friends Dr. and Mrs. and Miss Marks made possible a very enjoyable Easter Camp for the Club. Members as usual were very comfortably housed in a very excellent area and some new material was discovered by the Botanists and an excellent list of Birds compiled. Although these good people have been already thanked for making this outing possible it is my duty to also record our appreciation in this report and I do so on behalf of all concerned. The May outing was a walk from Holland Park to Salisbury, and though things were dry a useful afternoon's work and observation was accomplished. In June we journeyed via White's Hill, Pine Mountain and the country between there and Camp Hill. Some real climbing occurred here, so much so that some of we older club exhibits were glad now and then to stand and look back at the scenery. As Mr. White had promised a Nudist Colony at the top of the steepest pinch, this steep ascent was managed by all, but whether it was just one of those idle rumours or not, the Colony was not in session and we made off down the other side without any Zoological specimens of any dimensions worth getting excited over.

July to Downfall Creek and August to Sunnybank provided our usual half-day trips with familiar birds and flowers of suburban Brisbane which has to be our content these days. In September Mr. White led us a long ramble backwards and forwards through the Chermiside Hills, where the most outstanding feature was a large pig farm with its attendant colony of Ibis (two species), Crows and Pee Wees. Also near the end of the day near the Chermiside Cemetery we came across an interesting bit of swampy land with a number of unusual plants which have already been recorded in the report of that day. Another fine Week-End at Camp Mountain with the Marks family and an excellent afternoon at the Keepera Golf Course in November, were fitting finishes to a particularly useful and instructive year's rambles which the Club carried through despite war restrictions.

GEO. H. BARKER.

LIBRARIAN'S REPORT, 1943

During the year 35 books and 132 magazines have been lent to Members.

As there is a scarcity of books owing to war conditions, few additions have been made to the Library in the last few months, hence the falling off in numbers borrowed.

Thanks are due to Dr. E. O. Marks for the presentation of "British Birds" and to Mr. G. H. Barker for "The Bird Man".

E. M. JACKSON, Hon. Librarian.

STATEMENT OF RECEIPTS AND EXPENDITURE FOR THE
YEAR ENDING 31st DECEMBER, 1943.

RECEIPTS

| | £ | s | d |
|---|-------|----|----|
| Balance Forward from 1942 | 62 | 13 | 2 |
| Subscriptions | 57 | 8 | 6 |
| Nature Lovers' Certificates | 2 | 4 | 0 |
| Sale of "Queensland Naturalist" | 0 | 14 | 0 |
| Hire of Lantern | 0 | 10 | 6 |
| Surplus from Camps | 2 | 13 | 0 |
| Collection for Red Cross | 4 | 9 | 3 |
| Collection for "Smokes for Sick Soldiers" | 5 | 17 | 0 |
| Interest at Savings Bank | 1 | 6 | 5 |
| | <hr/> | | |
| | £137 | 15 | 10 |

£40 War Savings Certificates held by George Street Branch of Commonwealth Bank. Receipt for same held by Hon. Secretary, Miss E. E. Baird.

EXPENDITURE

| | £ | s | d | £ | s | d |
|--|-------|----|---|------|----|----|
| Rent, Women's Club | | | | 13 | 0 | 0 |
| Insurance, Bookcase, Library | | | | 0 | 3 | 7 |
| Telephone | 7 | 19 | 2 | | | |
| Less Refund | 2 | 4 | 9 | | | |
| | <hr/> | | | 5 | 14 | 5 |
| Petty Cash | | | | 9 | 12 | 5 |
| Barker's Bookstore (Magazines) | | | | 2 | 4 | 0 |
| Clark and Mackay— | | | | | | |
| Printing "Naturalist" | | | | 38 | 15 | 0 |
| Wrappers for "Naturalist" | | | | 1 | 6 | 0 |
| Subscription to Red Cross | | | | 5 | 0 | 0 |
| Subscription to "Smokes for Sick Soldiers" | | | | 6 | 0 | 0 |
| Expenses, August Meeting | | | | 1 | 0 | 0 |
| Honorarium to Hon. Secretary | | | | 5 | 0 | 0 |
| Balance in Bank | | | | 49 | 12 | 10 |
| Cash in Hand (Secretary) | | | | 0 | 7 | 7 |
| | <hr/> | | | £137 | 15 | 10 |

| | |
|----------------------------------|----------|
| War Savings Certificates | 40 0 0 |
| Bank Balance | 49 12 10 |
| Total | 89 12 10 |
| Cash in Hand | 0 7 7 |
| | £90 0 5 |

E. N. MARKS, Hon. Treasurer.
C. W. HOLLAND, Hon. Auditor.

WATTLES OR ACACIAS OF THE BRISBANE DISTRICT

By Mr. C. T. White.

(Presidential address delivered before the Queensland Naturalists' Club, 21st February, 1944.)

No. 1.*

The family Leguminosae to which the wattles belong is one of the largest families of flowering plants. It is exceptionally well developed in Australia and includes a number of beautiful flowering shrubs found here and nowhere else. The largest genus or group is *Acacia* which contains the wattles. The vernacular comes from the use of the twigs of these and other shrubs and trees in the making of the wattle and daub huts of the early colonists of New South Wales.

The genus *Acacia* contains approximately 500 species widely spread over the tropics and subtropics of the world and finding its greatest development in Australia, between 350 and 400 species occurring here. Twenty different wattles are found growing wild within a 15-mile radius of Brisbane, i.e., the area covered in our afternoon excursions.

The Australian wattles belong to two groups: Firstly, one in which the leaf-functions are performed by flattened leaf-like bodies known as phyllodes. The true leaves, which are feather-like and somewhat similar to those of the *Poinciana* and *Jacaranda*, drop off at an early stage in the plant's development; and, secondly, a group in which the leaves are all pinnate and finely divided, no phyllodes being formed. In the phyllodineous groups if a seedling

*It is intended to follow up this by other articles describing and illustrating the various species in the same way as the Eucalypts or Gum Trees were treated in earlier series of the "Queensland Naturalist."

wattle is examined the leaves will be seen to consist of two distinct parts: (1) a flattened leaf-stalk or petiole and (2) a bipinnate leaf-blade or lamina. As the plant develops these latter are shed and in older plants they may not be developed at all. Some species, however, retain them much longer than others and many carry them even when quite large plants. It has even been reported that in one species that is typically phyllodineous odd adult trees have been noticed composed entirely or almost entirely of all pinnate foliage.

An *Acacia* phyllode is not a true phyllode as understood in the average botanical textbook; that is, it is not composed entirely of the leaf-stalk or petiole but of the leaf-stalk and rachis of the bi-pinnate leaf. This can be seen in some trees such as Maiden's Wattle (*Acacia Maidenii*) and the Broad-leaved Sally Wattle (*Acacia implexa*) where transitions from the fully bipinnate to partially bipinnate and totally phyllodineous may be seen on the same young trees. These two species carry this type of foliage frequently when quite large, say 6 or 8 ft. high or more, and the shoots which bear these miscellaneous collections of leaf-types are known as reversion shoots. On this basis two groups have been defined as follows:

1. *Phyllodineae*.
2. *Bipinnatae*.

The first is by far the greater in Australia and the group is in fact almost entirely Australian. A few Northern Australian species are found in New Guinea and one extends westwards and northwards to the Malay Archipelago. A few species are found in New Caledonia and the New Hebrides, and another—*Acacia Koa*—in the Hawaiian Islands. This last is the source of the famous Koa wood used in the manufacture of the best Hawaiian guitars of native workmanship. These Pacific Island species do not occur in Australia.

What is usually regarded as the flower of the wattle is in reality a number of very minute flowers which may be gathered together in small balls or heads, as in the Queensland Silver Wattle, or into finger-like spikes, as in the Brisbane Black Wattle. Each individual flower though very small is perfectly formed with sepals, petals and other parts complete. The fluffy nature is due to the great number of protruding stamens carrying a large quantity of pollen.

One of the main features of Australian wattles from an economic standpoint is the importance of the barks of several of them as a source of tannin. On this account one of the main tanning species, *Acacia mollissima*, has been extensively cultivated in South Africa. The timber of wattles is as a rule hard and heavy but very beautiful. The species producing timber of the greatest value is *Acacia melanoxylon*, the Blackwood, one of the most important cabinet woods in Australia. It is found in Tasmania, Victoria and New South Wales but does not extend to Queensland. The majority of wattles are small trees, only a few producing mill logs. The woods of some, however, on account of their distinctive beauty, are in demand for the manufacture of small fancy articles. Some of the wattles now used extensively for these purposes are Mulga (*Acacia aneura*), Bendee (*Acacia catenulata*) and Myall (*Acacia pendula*). In Western Australia the favourite for this purpose is the "Raspberry Jam" (*Acacia acuminata*). The wood of this species has a very strong smell of raspberry jam which is noticeable in the timber even after it has been cut for some years.

Many wattles are gregarious, particularly in the interior parts, forming special types of scrub such as Brigalow, Lancewood, Mulga, Boree and Bendee scrubs of Western and Northern Queensland.

Wattles are extensively planted in Southern Europe for the cut-flower trade. The commonest is the Cootamundra Wattle (*Acacia Baileyana*), which is sent in large quantities in normal times to London for the English floral trade. Of late years, before the war, the Queensland Silver Wattle (*Acacia podalyriaefolia*) had been sent in increasing quantities.

Australian wattles are favourite shrubs for cultivation in English temperate houses. They are extensively cultivated as ornamental shrubs in warm countries.

A dichotomous key to the species found in the immediate neighbourhood of Brisbane is given herewith. This is followed by a key to the species in natural sequence.

DICHOTOMOUS KEY TO THE SPECIES

- | | |
|---|----|
| 1. Trees or shrubs bearing only phyllodes (flattened or rounded bodies like a simple leaf) in the adult stage, occasionally with bipinnate leaves and phyllodes in various stages of transition | 2 |
| Trees or shrubs with bipinnate leaves only | 18 |

2. Phyllodes narrow, terete (rounded), angled or dagger-like, scarcely flattened, not more than 1 mm. diam. 3
 Phyllodes definitely flattened, more than 1 mm. broad (sometimes several centimetres) 5
3. Phyllodes much over 1 cm. long 4
 Phyllodes dagger-shaped, 1 cm. long **A. juniperina**
4. Phyllodes 3-5 cm. long, pungent-pointed **A. pugioniformis**
 Phyllodes 10 cm. or more long (a few shorter ones commonly though not always present), scarcely pungent-pointed **A. juncifolia**
5. Margin of the phyllodes smooth, in one species with soft short hairs (eyelashed) 6
 Margin of the phyllode thickened and with minute teeth or glands **A. hispidula**
6. Young branchlets densely clothed with soft hairs, phyllodes sprinkled on the margins and surface with scattered hairs 7
 Young branchlets glabrous or pubescent, margins of the phyllodes in one species (**A. fimbriata**) ciliolate with soft hairs but in all cases the surface quite smooth and free of hairs 8
7. Small shrub, branches frequently decumbent, phyllodes pungent pointed, under 1 cm. long and about 2 mm. wide **A. amblygona**
 Small trees, phyllodes 3 cm. or more long and more than 1 cm. broad **A. podalyriaefolia**
8. Phyllodes with one prominent nerve down the centre or near the centre 9
 Phyllodes with 2 or more nerves running parallel along the phyllode 14
9. Phyllodes more than 1 cm. long, straight or sickle-shaped, point not at all pungent 10
 Phyllodes under 1 cm. long, straight on the lower side, curved (convex) on the upper, ending in a fine rather pungent point **A. plagiophylla**
10. Phyllodes not more than 1 cm. wide, midrib alone prominent, lateral nerves not visible 11
 Phyllodes mostly more than 1 cm. wide, penniveined (lateral nerves visible) 13
11. Trees of the open forest, mainly along creek banks. Young branchlets slender, slightly angular, soon rounded; phyllodes 2.5-9 cm. long, 1.5-5 mm. broad, with a prominent gland on the margin in the lower half; flower-heads in the young stage not enclosed in large bracts; pods under 1 cm. broad 12
 Tall upright shrub, in sandy land often on edge of swamps, branchlets strong, very angular, phyllodes 6-15 cm. long, 0.5-1 cm. broad, without any gland on the margin; flower heads in the young stage enclosed in large prominent bracts; pods over 1 cm. broad **A. suaveolens**

12. Young branchlets pubescent, phyllodes ciliolate (eye-lashed) on the margin at least in the young stage, usually disappearing in the older ones, 2.5-4 cm. long, 2-5 mm. broad **A. fimbriata**
 Branchlets glabrous, phyllodes quite glabrous on the margin, 4-9 cm. long, less than 2 mm. broad **A. fimbriata var. perangusta**
13. Whipstick shrub in eucalyptus forest, phyllodes mostly falcate, marginal gland at the base or absent, pods not more than 1 cm. wide, usually less **A. falcata**
 Small tree in eucalyptus forest, phyllodes straight or falcate, marginal gland above the base, usually very prominent and with a side nerve running to it, rarely absent or indistinct; pods more than 1 cm. broad **A. penninervis**
14. Flowers in heads 15
 Flowers in spikes ("fingerettes") 16
15. Tree, branchlets rounded or somewhat angular; flowers cream **A. implexa**
 Shrub, branchlets very much flattened, flowers deep yellow **A. complanata**
16. Phyllodes green, pods very narrow (about 5 mm. diam.) much twisted when ripe 17
 Phyllodes greyish green, pods prominently veined 1.5-2 cm. broad, much twisted and curled when ripe (old ones can often be picked up under the trees). **A. aulacocarpa**
17. Creekside or near creekside tree, phyllodes with three or more longitudinal nerves somewhat more distinct than the others, rachis of flower-spike pubescent, green pods pubescent; flowers borne in autumn and winter **A. Maidenii**
 Tree of the open forest, phyllodes usually with three nerves much more prominent than the others, and obliquely running into one another at the base; rachis or flower-spikes glabrous (without any clothing or hairs), flowers borne in winter to spring **A. Cunninghamii**
18. Trees without spines 19
 Shrub armed with long sharp spines in pairs (stipular spines) **A. farnesiana**
19. Leaves composed of 3-4 pairs of pinnae, pinnae of 15-25 pairs of pinnules, individual pinnules (leaflets) more than 1 cm. long **A. glaucocarpa**
 Leaves composed of 7-10 pairs of pinnae, pinnae of 30 or more pairs of pinnules, individual pinnules (leaflets) under 0.5 cm. long **A. irrorata**

Natural Arrangement of the Species

(Modified after Bentham's Arrangement of the Australian Wattles in the "Flora Australiensis")

DIVISION I. PHYLLODINEAE

Leaves mostly phyllodineous, occasionally with bipinnate leaves and phyllodes in various stages of transition.

Series 1. Pungentes. Phyllodes very narrow, not more than 1 mm. broad, angled or dagger-like commonly due to the prominent midrib and very narrow blade.

Phyllodes dagger-shaped, 1 cm. long

1. *A. juniperina*

Phyllodes 3-5 cm. long

2. *A. pugioniformis*

Series 2. Calamiformes. Phyllodes very narrow, terete (rounded) or scarcely flattened and linear, points innocuous.

Phyllodes 10 cm. or more long (a few shorter ones commonly though not always present)

3. *A. juncifolia*

Series 3. Uninerves. Phyllodes vertically flattened, with one central or nearly central nerve. Flowers in globular heads.

A. **Brevifoliae.** Phyllodes short, straight or falcate or with the lower margin straight, the upper curved (convex); peduncles 1-headed.

Margin of the phyllode with glandular teeth

4. *A. hispidula*

Margin of the phyllode smooth

5. *A. plagiophylla*

B. **Racemosae.** Phyllodes straight or falcate, flower-heads arranged in racemes. Phyllodes more or less distinctly penniveined.

Sepals free, narrow, marginal gland of the phyllode at the base or none

6. *A. falcata*

Sepals united, marginal gland of the phyllode above the base, usually with a secondary vein running to it

7. *A. penninervis*

Phyllodes not penniveined.

Shrub, branchlets strong, prominently 3-angled, phyllodes thick, 6-15 cm. long, 0.5-1 cm. broad, flower-heads in the young stage enclosed in large prominent bracts

8. *A. suaveolens*

Trees, branchlets rounded or slightly angular in the young stages, phyllodes not very thick, 2.5-9 cm. long, flower-heads in the young stage not enclosed in prominent bracts.

Phyllodes green, narrow (not more than 4 cm. wide), sometimes the margin ciliolate but surface quite glabrous.

Young branchlets pubescent; margin of the phyllode ciliolate at least in the young stage, phyl-

lodes 2.5-4 cr. long, more than 2 mm. Broad.....

Young branchlets glabrous- margin of the phyllode glabrous, phyllodes 4-9 cm. long, less than 2 mm. broad

Phyllodes greyish or greyish green, 3 cm. or more long, over 1 cm. broad, surface sprinkled with soft hairs

11. *A. podalyriaefolia*

Series 4. Plurinerves. Phyllodes vertically flattened, straight or falcate, with 2 or more longitudinal nerves; peduncles solitary or arranged in racemes.

Tree; branchlets rounded or slightly angular, phyllodes usually more or less falcate

12. *A. implexa*

Shrub; branchlets flattened or winged, phyllodes straight

13. *A. complanata*

Series 5. Juliflorae. Phyllodes vertically flattened, straight or falcate, flowers in spikes.

Small decumbent shrub or undershrub, phyllodes under 1 cm. long, pungent-pointed, surface sprinkled with hairs, flowers in spikes sometimes shortly oblong or even reduced to heads

14. *A. amblygona*

Trees, phyllodes glabrous, 8 cm. or more long, usually more or less falcate, spikes elongated.

Phyllodes green, pod very narrow (about 5 mm. diameter), much twisted.

Creekside tree, rachis of flower-spike densely pubescent

15. *A. Maidenii*

Tree of the mixed eucalyptus forest, rachis of flower-spike glabrous ..

16. *A. Cunninghamii*

Phyllodes greyish-green, pod 1.5-2 cm. broad, prominently veined, much twisted and curled when ripe

17. *A. aulacocarpa*

DIVISION II. **BIPINNATAE.** Leaves all bipinnate.

Series 6. Botryocephalae. Stipules small or none. Flower-heads globular, in racemes, the upper ones commonly forming a terminal panicle.

Leaves composed of 3-4 pairs of pinnae, pinnae of 15-25 pairs of pinnules, more than 1 cm. long

18. *A. glaucocarpa*

Leaves composed of 7-10 pairs of pinnae; pinnae of 30 or more pairs of pinnules, pinnules less than 0.5 cm. long

19. *A. irrorata*

Series 7. Gummiferae. Leaves bipinnate, stipules spinescent.

Shrub armed with long stipular spines ..

20. *A. farnesiana*

DENDROBIUM ADAE. F. M. BAILEY

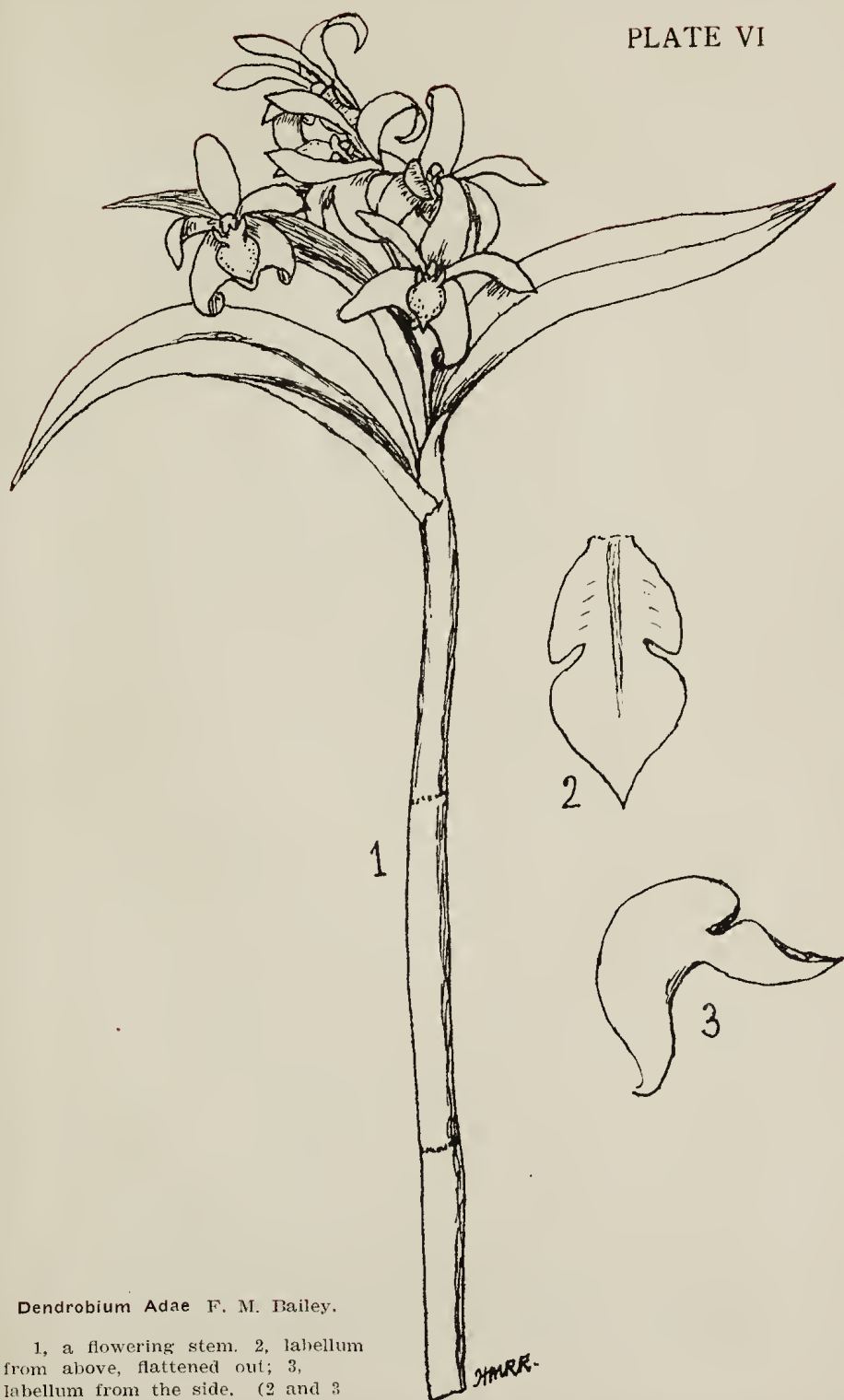
By the Rev. H. M. R. RUPP, Northbridge, N.S.W.
(Plate VI.)

This is one of the most beautiful of the North Queensland orchids. I must confess that although I have had a plant in my bush-house for some years, I have not appreciated it at its proper value until the present spring of 1943. It has been quite healthy and has produced new growths, but hitherto has borne only one or two flowers. For some strange reason, the exceptionally cold winter of this year appears to have stimulated it to unusual vigour, for six racemes developed, carrying 17 flowers in all, and these have charmed us and our visitors for the past three weeks with their delicate beauty and exquisite perfume.

Bailey's description in *Queensl. Fl.* Vol. V, p. 1529, is adequate for purposes of identification, but may be supplemented as follows: Flowers 1 to 6 in the raceme, nearly twice as large as those of *D. Kingianum* Bidw. Sepals rich cream, all strikingly recurved; petals narrower, pure white, slightly incurved, never recurved. Labellum pure white except for faint purple striae on the inside of the lateral lobes; mid-lobe spatulate rather than cordate, glistening-pubescent on the inner surface, which is very concave. Perfume resembling a combination of tuberose and *Pittosporum undulatum*, but milder and more delicate.

The conspicuous recurving of the sepals gives the flower a most unusual and attractive appearance; all the more so because the petals by way of contrast are inclined to curve inwards, though very slightly. The contrast between the rich cream colour of the sepals and the pure white of the rest of the flower is very effective.

When not in bloom, it is practically impossible to distinguish a plant of *D. Adae* from one of *D. Fleckeri* Rupp & White, which was described and figured in this journal, Vol. X, No. 2, pp. 25-6. As a matter of fact my own plant of the former was sent to me by Dr. H. Flecker, of Cairns, under the impression that it was the species named after him. Curiously, although both species live under similar conditions within the same area, *D. Fleckeri* appears to be more sensitive to cold than the other. It has never failed to produce less than a dozen flowers for me until the present season, when two lonely buds are appearing, very late,



Dendrobium Adae F. M. Bailey.

1, a flowering stem. 2, labellum from above, flattened out; 3, labellum from the side. (2 and 3 much enlarged.)

A NEW SPECIES OF DENROBIUM FROM NORTH QUEENSLAND

By the Rev. H. M. R. Rupp, Northbridge, N.S.W.
(Plate VII.)

D. ancorarium, sp. n.

Planta gracilis, in specimine meo cum 5 pseudobulbis, prioribus costatis; pseudobulbus longissimus 17 cm. altus. Folia 3, summo pseudobulbo, late lanceolata, minute emarginata, 5-7 cm. longa. Flores racemosi, in pedicellis circiter 15 mm. longis cum bracteis linearibus. Racemus inter folia emergens. Flores in specimine meo 2. Sepala extra viridescencia cum notationibus fuscis, intus flavoviridia. Sepalum dorsale latum, circiter 13 mm. longum; sepala lateralialia latissima, circiter 15 mm. longa; calcar latum, breve, curvum. Petala pallidissima, cum basis fuscis, angustissime lanceolata, intus concava, circiter 12 mm. longa. Labellum trilobatum, brevius quam petala, album; lobi laterales inconspicue lineis purpureis notati; lobus intermedius fere cordiformis, crassus glaberque, supra concavus; lamina cum jugo plano abrupte in lobi intermedi ruga terminanti. Columna alba, ad pedis basem cum notatione ancorae simili.

A slender species, in my specimen with 5 pseudobulbs, the older ones ribbed, the newer growths smooth, the longest one 17 cm. high. Leaves 3 at the top of the pseudobulb, broadly lanceolate, minutely and obliquely emarginate, 5-7 cm. long. Flowers racemose on pedicels about 15 mm. long with linear bracts. Raceme arising from between the leaves. Flowers in my specimen 2. Sepals outside greenish with brown markings, inside yellowish-green. Dorsal sepal broad, about 13 mm. long; lateral sepals very broad, about 15 mm. long; spur broad, short, curved. Petals very pale, with dark brown bases outside, very narrowly lanceolate, concave inside, about 12 mm. long. Labellum trilobate, shorter than the petals, white; lateral lobes faintly streaked transversely with purple lines; middle lobe almost cordiform, thick and glabrous, concave above; lamina with a flat plate abruptly terminating in a curious cup-like fold just above the base of the middle lobe. Column white, furnished at the base of its foot with an *anchor-shaped* marking outlined and speckled with dark brown dots.

About five years ago, Dr. H. Flecker, of Cairns, North Queensland, sent me a small *Dendrobium* plant obtained in the neighbourhood of Mount Spurgeon. It had 3 small pseudobulbs about 7 cm. high, and appeared to me to be probably a juvenile plant, of what species it was impossible to say. For a long time it remained quiescent in my bush-

house; but in 1942 it threw up a new pseudobulb rather more than 12 cm. high; and in 1943 another was produced, 17 cm. high. About June of the present year (1944) it became evident that the 1942 stem was going to develop a raceme between the leaves; and in the first week of September two flowers opened. Examination soon proved that the plant could not be included in any species hitherto described. Its nearest affinity is undoubtedly *D. Adae* F. M. Bailey; but the glabrous mid-lobe of the labellum entirely lacks the dense pubescence of that of Bailey's flower, which in its turn lacks the curious fold in which the laminal plate of the labellum of the new species abruptly terminates. The most singular feature of *D. ancorarium* is that from which its name—"pertaining to an anchor"—is derived; an anchor-shaped design clearly picked out in dark dots at the base of the column-foot. It is practically identical in both flowers. As I was anxious to preserve both for the type specimen, it was not possible to make any experimental observations as to the nature and function of this strange marking; it is probably glandular in character, but further material will be required for investigation.

It seems probable that *D. ancorarium* has been confused with *D. Adae* F. M. Bailey. Since the above description was prepared I have received a flower from Mr. T. E. Hunt, of Ipswich, supposed to be *D. Adae*, but it is undoubtedly *D. ancorarium*. Outstanding points of distinction, which I think fully warrant specific separation, are:—

D. Adae

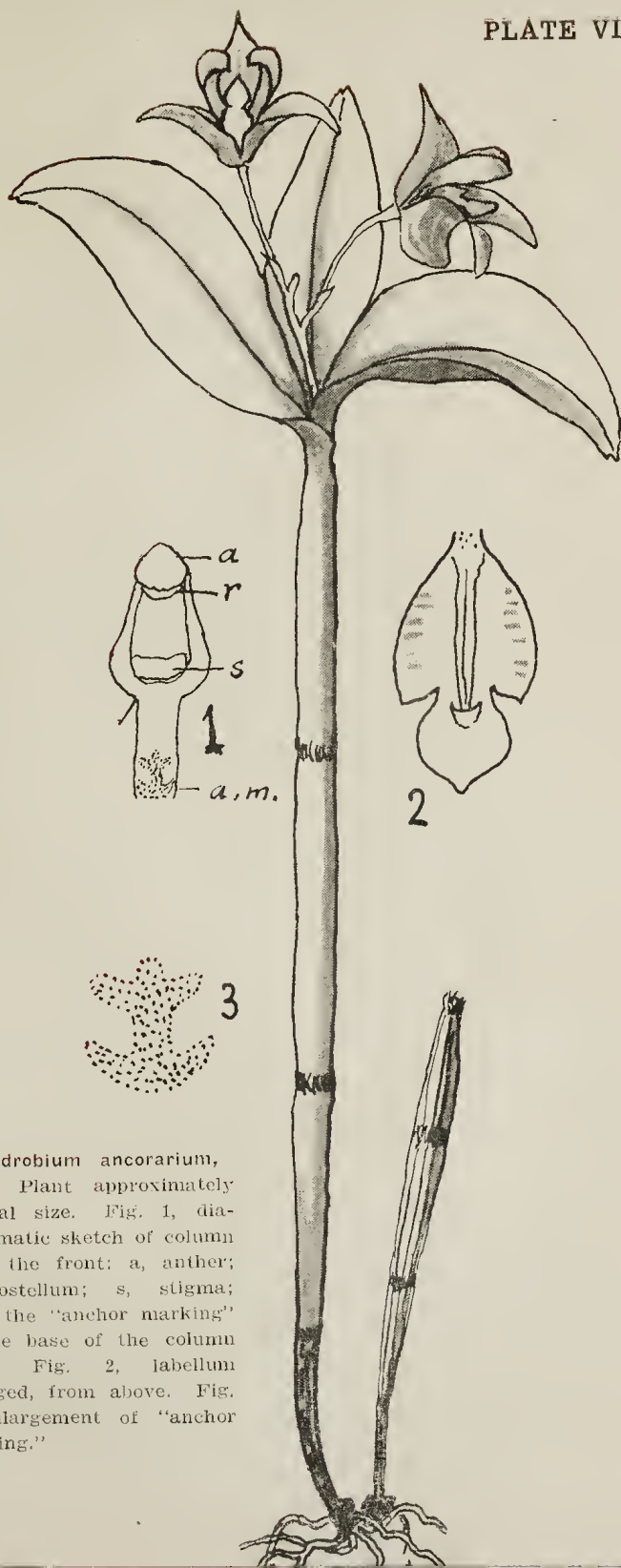
Leaves up to 10 cm. long
rather narrowly lanceolate.
Old stems very faintly ribbed.
Flowers white or pale cream.

Mid-lobe of labellum densely
white-pubescent.
Column-foot devoid of markings.

D. Ancorarium

Leaves up to 7 cm. long, broadly lanceolate.
Old stems strongly ribbed.
Flowers green and brown outside, yellowish-green inside, labellum white.
Mid-lobe of labellum glabrous.
Column-foot with an anchor-shaped marking at the base.
Flowers withered before those of *D. Adae* are opened.

I may add here that the "anchor" on the column-foot of *D. ancorarium* appears to be evanescent. It has practically disappeared from my dried flowers; and in Mr. Hunt's flower (sent in formalin) only a vague outline could be detected.



Dendrobium ancorarium,
sp.n. Plant approximately
natural size. Fig. 1, dia-
grammatic sketch of column
from the front: a, anther;
r, rostellum; s, stigma;
a.m., the "anchor marking"
at the base of the column
foot. Fig. 2, labellum
enlarged, from above. Fig.
3, enlargement of "anchor
marking."

THE LATE HENRY TRYON

By C. W. Holland.

On 15th November, 1943, Mr. Henry Tryon, one of the founders of the Queensland Naturalists' Club, died at Brisbane in his 87th year. Excluding Dr. A. Jefferis Turner, the well-known entomologist, he was the last of the pioneer naturalists of Queensland.

Mr. Tryon was the son of the late Henry Carley Tryon, of Tollmarsh House, Buckfortleigh, Devon, England, and a cousin of the late Vice-Admiral Sir George Tryon, K.C.B., and Lord Tryon, formerly Postmaster-General of the United Kingdom. After some early training in the naval service, he went to New Zealand. From thence he came to Queensland, where he spent over 50 years in the service of the State. His first appointment was to the scientific staff of the Queensland Museum. Later he was appointed to the Department of Agriculture and Stock, with the title of Government Entomologist and Vegetable Pathologist.

Although primarily an entomologist, he had a deep knowledge of many branches of natural history. His brain seemed to contain veritable text-books of zoology and botany, and, indeed it would to-day be hard to find anyone with a more all-round knowledge of these subjects. During his long service in the Department he carried out valuable work in economic entomology, in addition to that in other scientific fields. Most of this work was accomplished in somewhat cheerless quarters in the basement of the Department where, when not engaged in the field, he was available to the public with his advice. He would identify a specimen submitted to him almost before it was placed on the table, and would send his visitor away with a few notes on it written there and then.

Mr. Tryon's services to the sugar industry alone were of great value. In 1896 he visited New Guinea, and as a result new varieties of sugar-cane were brought to Queensland, including the valuable one known as Badilla. He had earlier (in 1885) shown his interest in New Guinea by raising subscriptions in Queensland to enable H. O. Forbes to continue and complete explorations in that country.

In 1884 he helped to establish the Royal Society of Queensland, of which he was the first Hon. Secretary. Two

years later (1886) he was the principal mover in the formation of a Field Naturalists' Section of the Royal Society, which lasted until 1894.

Early in 1892 a Society was formed under the name of The Natural History Society of Queensland, and Mr. Tryon was its first President. Unfortunately, the Society only existed for about three years.

The natural history movement in this State went to sleep for a few years, and was revived in March, 1906, by Mr. Tryon and a few other enthusiasts, when the present Club was inaugurated. Mr. Tryon was a tower of strength to the Club in its early years, and maintained his interest in it.

When, in 1888, a Royal Commission was appointed in New South Wales to report upon various schemes for the extermination of rabbits, Mr. Tryon was one of two Queensland representatives, and in this capacity he did special work.

His work in connection with the extermination of prickly-pear does not seem to have been fully recognised by the public. He was the first to suggest the possibility of using natural enemies against it at a time when the prospect of combating the pear looked extremely black, and his suggestion led to the ultimate conquest of the pest. When a commission was sent round the world by the Queensland Government in search of natural enemies, Mr. Tryon was one of its members.

Mr. Tryon published more than 150 reports and papers dealing with entomology, botany, plant pathology and other scientific subjects—a record that it would be difficult to equal. Among these were numerous papers given to the old Natural History Society and the present Club.

Henry Tryon was a clever man who did great work for this country.

CRATICUS NIGROGULARIS (BLACK-THROATED BUTCHER-BIRD) AS A MIMIC

By E. A. R. LORD, Murphy's Creek.

As I write these notes there is a pied butcher-bird—a brown and white bird of last summer's hatching—calling

and mocking not ten feet from my desk. Many familiar bird-calls are being used, intermingled with the bird's own calls.

The Grey Butcher-bird, *C. torquatus*, is well known as an accomplished mimic, but few have heard the pied bird. To my thinking its power of mimicry is superior to that of the Grey Butcher-bird.

I heard a rare performance a little time ago when five birds—two adults, one bird of the October, 1941 hatching which has not quite reached its full mature plumage and two birds of the October, 1942 hatching which are still in their immature colour*—were all singing and mocking together. Many bird-calls were imitated so perfectly that it seemed that at least twenty species of birds were calling amongst my trees in the garden. The several calls of the male and female Koel were given.

Mimicry seems to be confined principally to bird-calls. The only animal call noted is the peculiar high-pitched and foal-like whinny of one of my horses. This sound has been apparently fixed on the birds' minds as it is frequently given, and often, when I have whistled an imitation of the horse's neigh, the bird has repeated it immediately and much more perfectly than my effort.

REQUEST FOR INSECTS FROM QUEENSLAND

The following letter has been received from Mr. K. Fairey, "The Manse," Yaas, New South Wales. Any member of the Club who may be interested is requested to write to Mr. Fairey direct.

Dear Sir,

Is there any member or friend of the Club who could help me to get some information and specimens of certain Queensland insects?

I would, of course, if they wanted, try to do the same for them with N.S.W. insects.

The ones I would want belong, mainly, to the groups Hymenoptera, Coleoptera, Lepidoptera and Diptera. If there is anyone who would do this for me I would supply details of the specimens which I want.

Trusting you will try to help me in this matter.

*These notes were received in October, 1943.

BOOK REVIEW

The Orchids of New South Wales by H. M. R. Rupp. In this book, published as part of the Flora of New South Wales, Mr. Rupp has given an excellent account of the orchids occurring in New South Wales. The introductory remarks, excellent illustrations and glossary help to smooth the way for the non-specialist, while the arrangement of the text leads to clarity and ease of use. There is no doubt that the book is a very valuable addition to Australian botanical literature and of great service to all who have or will have any acquaintance with Australian orchids. Its scope is by no means restricted to New South Wales and it has been successfully used in the study of orchids in Southern Queensland.

JOHN GARTENS
and
Associates